

# STOP FISHING!

## Eighty boats lie idle as Peru halts catching for the meal factories



Fisheries Minister Francisco Mariategui — year's catch has topped one million tons

PERU'S Fisheries Ministry has banned all industrial fishing from July 7.

Eighty purse seiners were made idle. Sixty of them had been fishing for pilchard, jurel (jack mackerel) and Pacific saury all along the Peruvian coast, and 20 were working off Ilo in the south for anchovy.

Although the fleet is now owned by small private companies, having been sold by the state company, the fishing is controlled by the Ministry.

Catches are sold to Pescapera, the state anchovy company, for reduction to meal.

### Exceeded

This year's industrial catch has exceeded one million tons, according to Minister of Fisheries Vice-Admiral Francisco Mariategui. Half of it consisted of anchovy taken only in the Ilo area.

Meal production at mid-June totalled 240,000 tons.

Fish oil production to the end of 1978 was expected to be 40,000 tons, which would only partly meet local demand.

The Ministry of Food has therefore approved the import of 9,500 tons a month of vegetable and soya oil to make up the shortfall.

One result of the shortage of raw material for meal plants, is more effort by factories to cut down on waste.

The Swedish firm Alfa Laval is, for example, supplying Pescapera with 14 plants for the recovery of pump water in the meal factories. From this the Alfa Laval plants extract solids and oil left after the pumping of the fish.

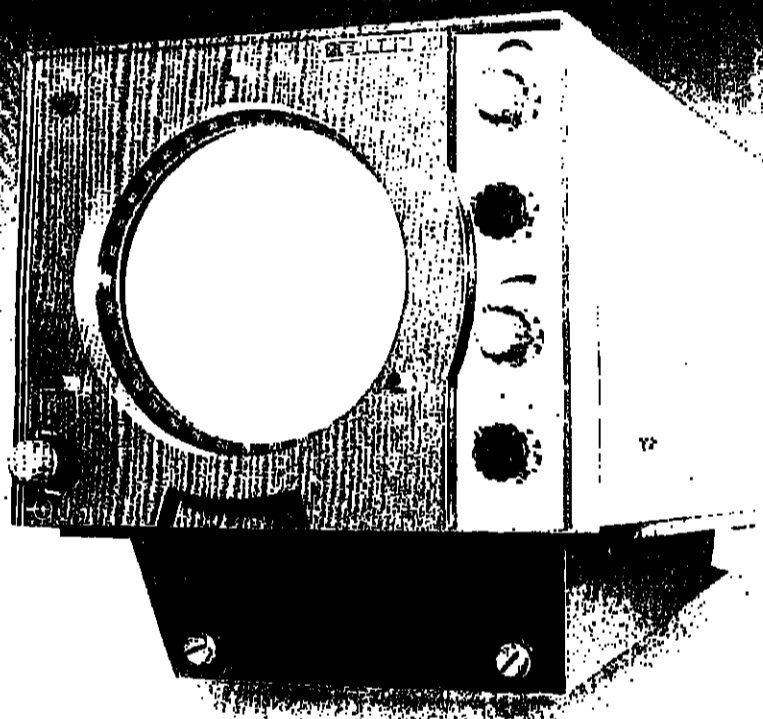
## Norway to recruit foreign crewmen

NORWAY'S Labour Directorate has given trawler owners permission to recruit Icelandic, Faroese and Danish fishermen to work aboard their trawlers when the regular crews are on holiday.

The foreign crews will work mainly during the summer. But the chairman of the owners' association has said it may be necessary to hire abroad for the rest of the year, too.

Before permission was given, it was made clear that no Norwegian fishermen were available. The Norwegian authorities assist owners with the cost of bringing the foreign crews over.

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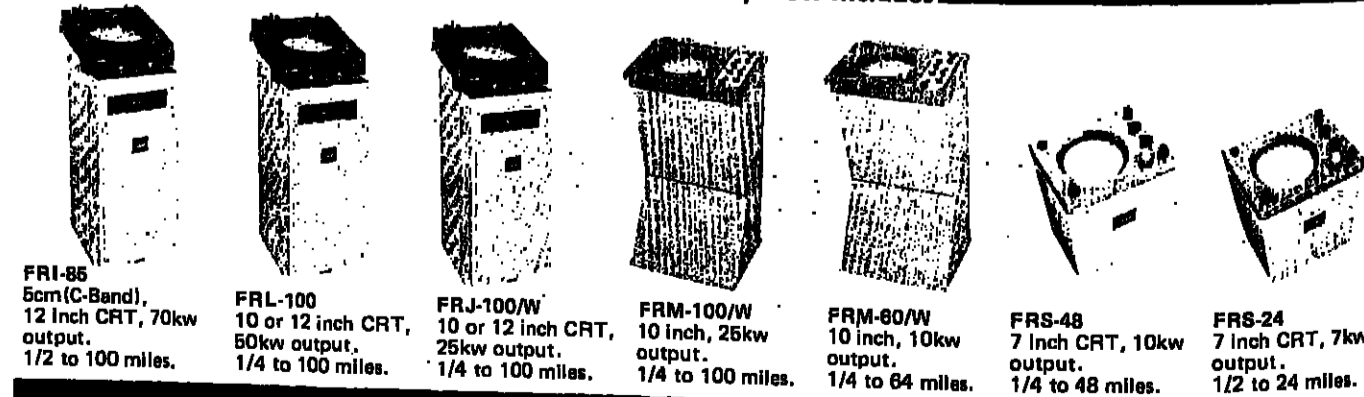
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# fishing news international

September 1978 Vol 17 No. 9

75p monthly

HESPERUS

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### Purser protest

Norwegian purse seiners pack Bergen harbour in demonstration against mackerel controls — Page 2

### PERU MEAL FACTORIES

Boat owners ask state to denationalise fish meal factories — Page 3

### Spain and EEC

Out and back again confusion over Spanish fishing in 200-mile zone — Page 7

### Vardal quits



Norway's Director of Fisheries returns to the family business — Page 19

### RED SALMON



How Russia is boosting her more valuable fish resources — Page 22

### Dearer than steak!

OECD report reveals further rise in fish prices — Page 28

### Marco builds a big one



Largest crabber yet from Seattle yard — Page 32

### British back to Iceland

But this time to sell fishing news and equipment — Page 37

# USSR BUYS SHRIMPERS IN SPAIN

IN 1975, alongside the Inrybrom fishery exhibition in Leningrad and lost among the factory ships and gleaming super-trawlers, was a small shrimp boat. She was a prototype built in Spain and she had been brought all the way from Las Palmas.

When the exhibition ended, the boat was given to the Soviet industry for test fishing.

This initiative, almost unnoticed at the time, has now brought an order to Spain worth 11 million US dollars for 12 boats based on the prototype. And this first contract could lead to others for up to 100 such boats.

The contract was signed in Moscow by Bartolome Lloret, President of Construcciones Navales del Suestia SA of Alicante and Oleg Kropotov, President of Sudoinport.

### First big orders

It is the first large-scale order from the USSR for Spanish vessels and is greatly welcomed by a shipbuilding industry in deep crisis through lack of business. The 12 boats are due by 1982.

Sovhispan, a firm owned equally by the Soviet Ministry of Fisheries and Spanish interests, introduced the prototype to the USSR. It was formed in 1971 and has offices in Madrid, Moscow and the Canary Islands.

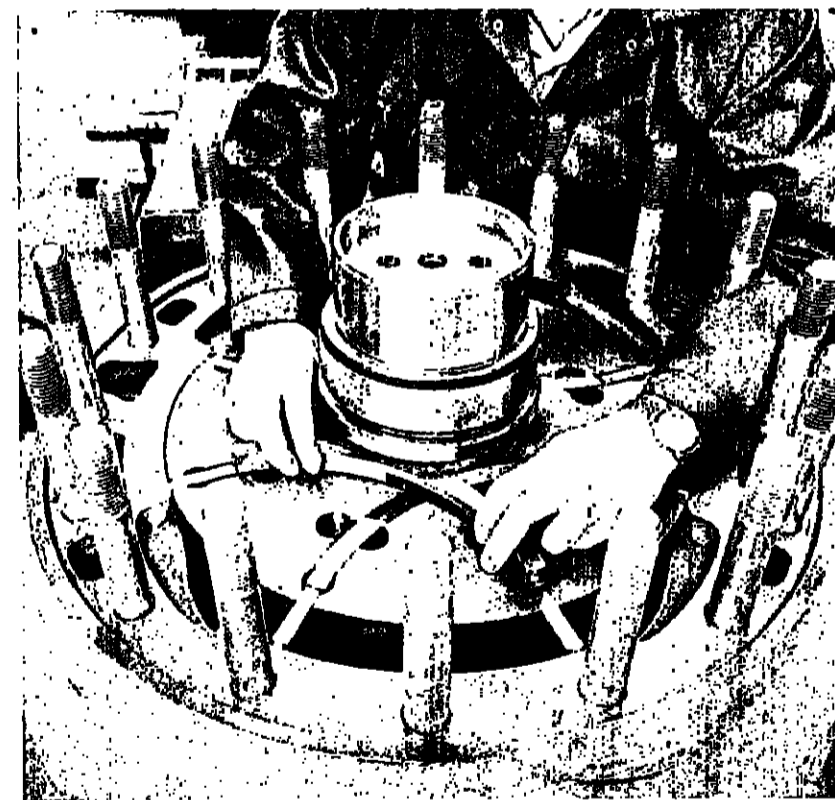
"This contract is the beginning of closer co-operation between the two countries for shipbuilding and repairing," said Sovhispan's President Jesus Rodriguez Beltran. "Already in 1978, many more Soviet ships are being repaired in the Canary Islands, and this confirms the importance of the fishery sector in the relations between Spain and the USSR."

### Sort this one out!

IT WAS reported last month that the 3,000-ton capacity fish meal factory ship *Norglobal* has been chartered to produce fish meal from capelin in the northern Barents Sea for the Faroe Islands.

The ship was sold

recently to Bermuda-registered British interests. In the Barents Sea, she will be supplied by Faroe vessels taking capelin which they have been allowed to catch in exchange for 60,000 tons of blue whiting.



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**Biggest  
but  
not best**

ONE OF the biggest landings from a single vessel ever seen at the British port of Hull was discharged last month by the Icelandic trawler *Juni*.

The 5,138-kil (32) tons catch took two days to land from the wet fish stern trawler. But it is believed that the ship was acting as carrier for other vessels and the quality of some of the fish was poor.

Because of this, the big landing made just under £90,000 which was £32,000 less than the record set by the Icelandic trawler *Engy* with only 275 tons in July. (See FNI August).

THE Australian Parliament voted last month to extend the country's fishing limit from 12 out to 200 miles.

# Purser protest

South of  
sixty  
or bust



NINETY-SIX Norwegian purse seiners, almost all the ships engaged in mackerel fishing north of 60°, left the North Sea last month and converged on Bergen.

This is the headquarters of the Fisheries Directorate and the purse seiner owners and crews were demonstrating to be allowed to go south of 60° for mackerel.

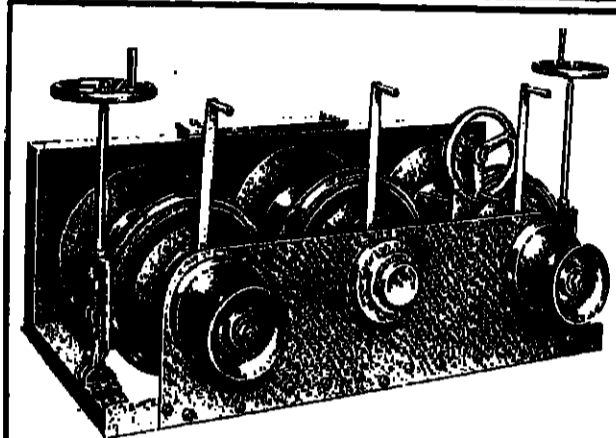
The Norwegians complained that they had to wait until September 1 to go south, while EEC vessels were already fishing the area.

Led into Bergen by the big new purser *Libas*, the fleet put up a spectacular show of the size and power of this section of the Norwegian industry.

The 96 ships had the full support of their organisations.

Their five spokesmen on the catch regulating committee and a representative of the Norwegian Fishermen's Union all arrived in Bergen to put their case to the Fisheries Directorate.

While they were meeting, coastal fishermen south of 60° threatened their own demonstration if the fleet was allowed to take mackerel there before September 1.



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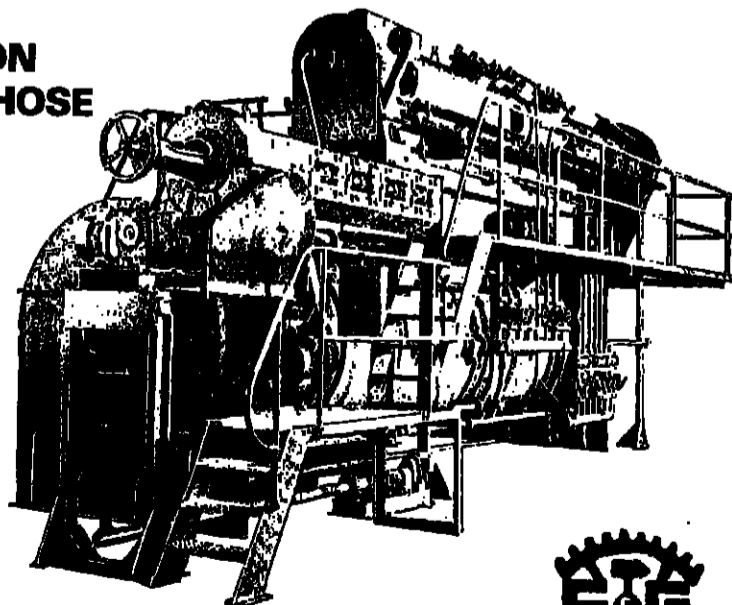
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## Norway loan for Shetland ship

SCOTTISH fishermen on the Shetland island of Whalsay have found a new way of getting assistance to build new vessels — they are having them constructed in Norway using loans from the Norwegian government.

Whalsay, with a population of only 900, already has four purse seiners in its fishing fleet. Now it is getting two more. The 106 ft (32.3 metre) ships are being built in the Sjøbjørn Iversen yard.

The first, due for delivery in November, is for Skipper Laurence Irvine and partners; the second is for a partnership of eight young fishermen.

They turned to Norway

because they were unable to get assistance from the British White Fish Authority. The Norwegian government has been providing loans to let yards busy and people in jobs.

The Norwegian loan covered 80 per cent of the cost; the vessel at eight per cent interest.

Both purse seiners will be powered by British Mincor Blackstone engines of 1000hp but most of the gear handling and refrigeration machinery is being supplied by Norwegian manufacturers.

The first boat, the *Antares* will have six RSW tank-Kinnorv deck machines, Simrad sonar and echo sounders and an American Wesmar sonar.

## Korea asks for more

A NEWLY - FORMED Korea / New Zealand Businessmen's Council will be having its first meeting in South Korea on September 22.

The Korean Ambassador in Wellington, Mr. Lee, is calling for an increased allocation of fish for Korea, on the grounds that New Zealand exports have increased rapidly while Korea's exports to New Zealand have remained at about \$12 million.

In 1977 New Zealand exported produce worth \$43 million to Korea and it is expected that \$70 million will be exported this year and possibly more than \$100 million in 1979.

Mr. Lee is pressing for an increase in the squid allocation to Korea and timed

**Another state  
with a  
hungry eye  
on NZ waters**

his request to coincide with the talks between New Zealand and Japan.

Korea's New Zealand fishing quota this year is 32,000 tons although she applied for 72,000 tons. And it was limited to 400 tons of squid. According to Mr. Lee, only 23 of Korea's 900

vessel trawling fleet are working in New Zealand waters.

No mention was made however of the complaints of New Zealand fishing industry organisations on the marketing practices of Korean companies which have been fishing in NZ waters.

It is interesting to note that Russia was given a fish quota in the New Zealand EEZ taking into account both her previous catches since the UN law of the sea negotiations began and the trade imbalance with Russia buying fairly large quantities of meat from New Zealand.

This year Russia has bought practically no meat from New Zealand so there is some speculation over whether this will affect the 1979 fish quotas.

## STOPPED IN BARENTS SEA



TWO British stern trawlers, the *Coriolanus* and the *Arctic Buccaneer*, had a brush with the Russians in the Barents Sea last month.

The trawlers were fishing in the so-called "grey zone" with Norwegian licences when they were stopped by a Soviet patrol ship. They were inspected and then shown out of the zone.

According to the agreement between the USSR and Norway, third country ships licensed by Norway to fish in the Barents Sea are to be inspected only by the Norwegians. Both ships left the area without contacting the Norwegian authorities.

# GIVE US OUR FISH MEAL PLANTS BACK

IT IS BEING forecast in Peru that a catch of around 2.5 million metric tons will be landed by the end of the year, despite an earlier estimate by the Ministry of Fisheries of only 1.5 to 1.8 million tons.

By early last month, the Peru catch for 1978 had reached 1.5 million tons. This was made up of pilchards, jack mackerel, and Pacific saury as well as anchovy.

Fishing, which closed on July 7, was expected to resume sometime in September.

The Institute's latest calculations estimate anchovy stocks at about five million tons, compared with two to three million tons at the beginning of the year and with 20 million tons during the heydays of Peru's anchovy fishing in the late 1960s and early 1970s. But fishermen say that the calculations are conservative.

### Dwindled

Peru's industrial fleet has now dwindled from 1,500 boats in the peak years to about 500 purse seiners. These are owned by about 300 small companies formed mainly by shareholders in the fishing concerns nationalised by the government in May 1973.

The factories remain nationalised, but the boats were sold back into private ownership at the end of 1976.

Industrialists are now urging that the fish meal plants, owned by the state company Pesquera, should be restored to private ownership also.

"The present division is artificial and the whole operation should be integrated," argues Victor Arce, President of the Peruvian Association of Boatowners.

### Not enough

According to the Association, most of its members are only just breaking even and are certainly not making enough to provide for fleet renewal which will become necessary over the next four or five years.

"About 40 per cent of the boat owning companies are practically broke," says Mr. Arce. Worst hit are the new companies which have had trouble getting credit.

The Boatowners Association (Asociacion de Armadores Pesqueros) is to hold its first national congress in Lima on September 15, 16 and 17 to discuss its dealings with the state companies and the problems of both industrial and food fishing.

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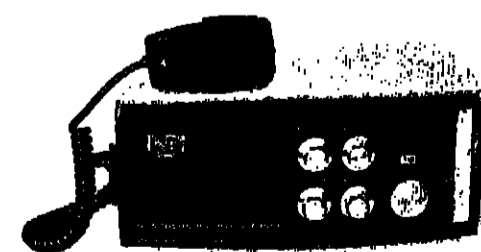
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at least £206 in one thousand hours of operation. But fuel economy is only part of the story.

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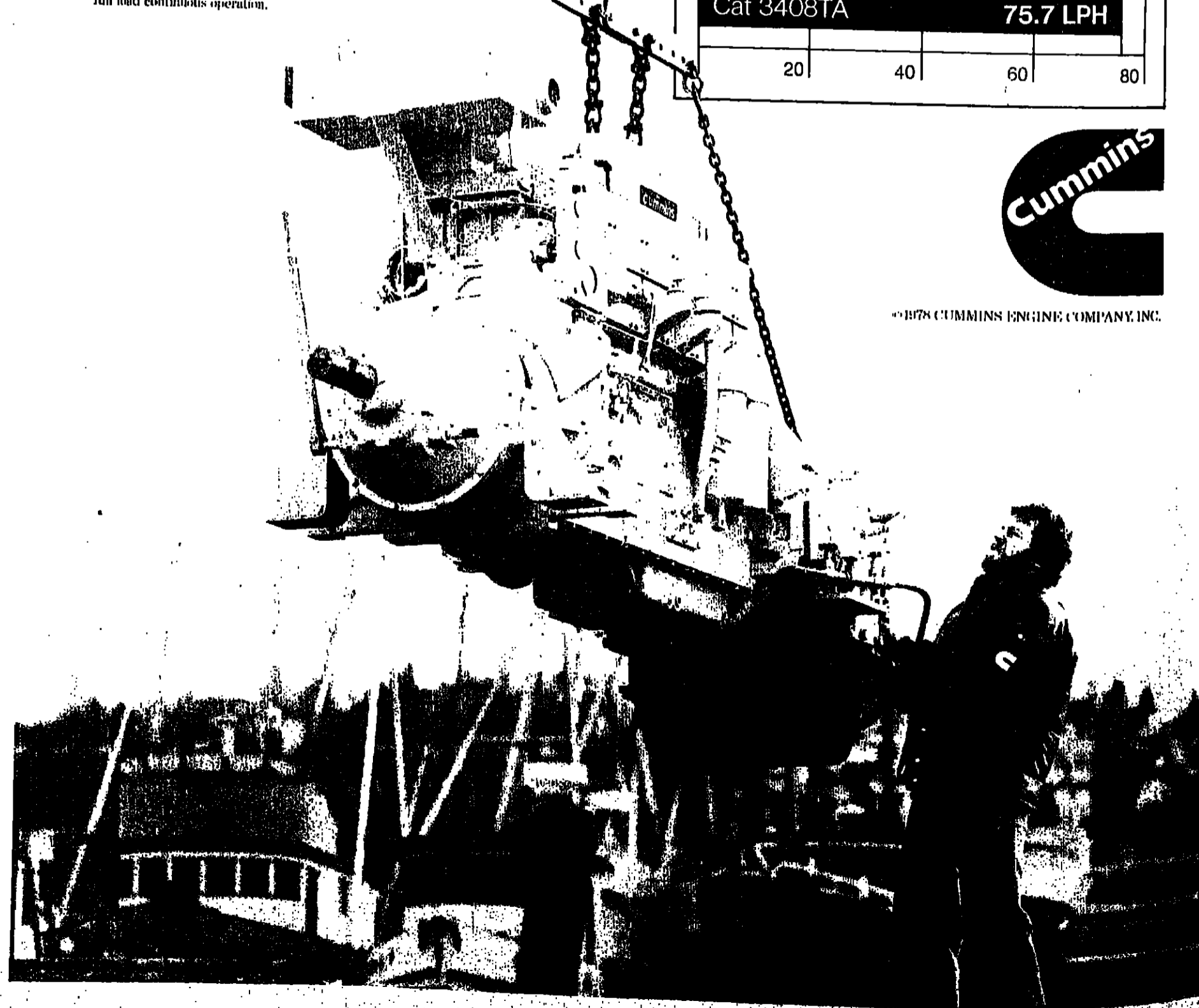
## FUEL CONSUMPTION (LITERS PER HOUR)

Cummins KT-1150-M	70.8 LPH		
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20	40	60	80



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\*Based on information published by Caterpillar and Cummins concerning fuel consumption of manufacturers' engines under comparable conditions at full load continuous operation.



## comment

# DEATH IN A CAN!

THE SALMON poisoning case in Birmingham, England, turned to tragedy last month when two of the four elderly people afflicted with botulism died.

They were the younger of the two couples who had sat down to tea on Sunday, July 30, and treated themselves to a 7½ oz can of John West red (sockeye) salmon.

Jesse Farmer (64) died on August 16 from bronchial pneumonia due to botulism. His wife Betty (66) died three days later. Mr. Farmer's older brother Leonard (79) and his wife Clara (72) are still seriously ill.

As we reported in *FN* last month, the salmon was caught off Alaska and packed in a modern, well-supervised, well-equipped factory on the shores of Bristol Bay.

Cases of botulism are extremely rare. This was the first known to have resulted from eating salmon.

Other botulism cases in Britain included one tragedy in 1922 when a fishing party in Scotland ate infected potted duck paste. Eight people died.

In view of the rarity of botulism, the hospital staff and health authorities involved reacted with a swiftness that shows how well informed they were about symptoms of the poison.

Toxins produced by the botulism bacillus are the most powerful natural poisons known. The lethal dose for adult man is an incredibly minute ten millionths of a gram.

Serum from blood samples of the four victims was injected into mice who died in 3½ hours. Saline washings from the can and of salmon particles found in it killed the mice tested within 30 minutes.

Final diagnosis of the poison as that from the spores of *C. botulinum* type E was confirmed through cultures from the salmon.

## Reacted promptly

But before then, John West, the company which had marketed the can, had reacted as promptly as the health authorities. Throughout Britain, it culled its salmon. From the code, it narrowed down what might have been the most immediately dangerous packs.

The British advised and warned the Food and Drug Administration in America.

As the Farmers were beginning their struggle to live, hundreds of people were engaged in an intensive investigation to find how this deadly pack had come through a series of stringent hygiene controls.

The search goes on. But, at the inquest on Jesse Farmer it was revealed that a minute hole, surrounded by rust, had been found in the can.

According to an expert from the Metal Box Company, the can was probably punctured by contact with a rough serrated surface. He could not say whether this happened before or after sterilisation.

## Eighty million

According to director Barry Browning, John West has been handling canned salmon for 107 years without accident. The company sells about 80 million cans a year.

This 7½ oz pack was one of 450,000 imported from the Alaska factory and one of 14,273 in the same coded batch. A sample was inspected on arrival in the UK and was found to be slightly above average quality.

Tracing all of the 14,000 cans was "like trying to find a needle in a haystack." Some 2,300 cans had been recovered and examination had revealed no trace of toxin.

But, because of what seems like a mischance of a million and more to one, salmon sales in Britain have taken a tumble from which they may need years to recover. And the search will have to go on to determine just how it could have happened.

To blame a hole in a can is not enough. From all we know of the controls and quality standards in the industry, we believe canned salmon is a safe food.

But the public in Britain are going to need some persuading, and this will have to be backed by the evidence of the most thorough investigation into why and how that deadly salmon came to be on the Farmers' tea table!

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Telex No: 21977

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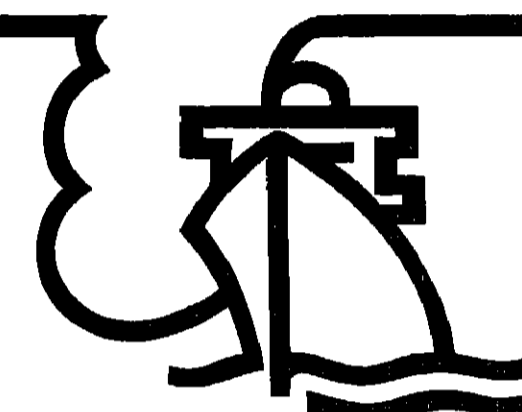
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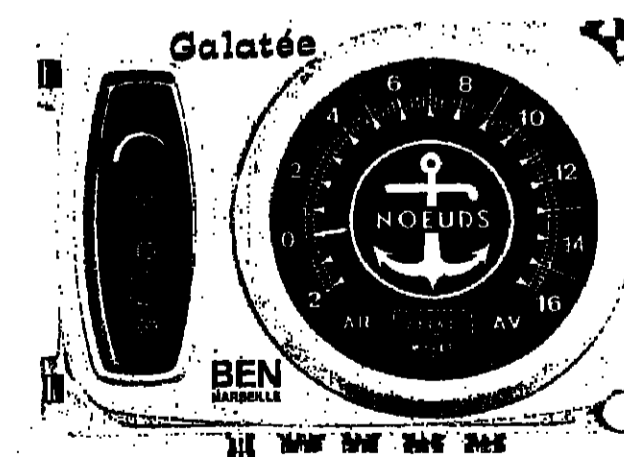


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# Wesmar news



Using her SS230 scanning sonar, the "Susan Wood" brought in 1,800 lb (816.5 kg) of shrimp off the coast of California.

## WESMAR boosts catch in shallow waters

BECAUSE OF WESMAR's SS160 scanning sonar's ability to perform in shallow waters, Kazuo Sakai, owner and Captain of the Sakai Maru, is able to locate schools of fish other nearby fishing vessels are unaware of, which will help him to increase his catch.

## Why a Canadian boat exceeded her quota of herrings

"I HAD to give away more than 300 tons of herring because I was over my quota. I owe my entire catch to WESMAR," said Scott Russell, captain of the Polly B, a 65 ft (20 metre) long wooden purse seiner equipped with WESMAR's SS160 scanning sonar.

The Polly B fishes out of the Bay of Fundy, Gran Manan, New Brunswick, on the east coast of Canada.

"There is such a difference in sonars," Russell said. "Other sonars don't seem to work too well in bad weather. The SS160 works in full weather."

He said he usually sets his SS160 on the 1,200 ft (366 metre) range. "The SS160 is really good for short distances compared to low frequency sonars," the experienced sonar operator said. "Even on surface schools, the WESMAR keeps its range."

"For the money you pay, the SS160 does the job. I am really tickled with the WESMAR sonar," said Captain Russell. "I'm not making up a yarn. The WESMAR SS160 seems to be the best."

WESMAR Western Marine Electronics, 905 Dexter Avenue North, Box C19074, Seattle, Washington 98109 USA. Telephone: (206) 285-2420. Cable: WESMAR. Telex: 329509.



Captain Leroy Johnson with his WESMAR SS230 aboard the "Susan Wood".

## Unfamiliar waters open to shrimper using sonar

LAST NOVEMBER when shrimp were scarce in the waters around Washington and Oregon on the Pacific Coast of the United States, Leroy Johnson, captain of Joe

Bruney's Susan Wood of South Bend, Washington, decided to sail south toward California where word had it shrimp were plentiful.

Johnson, new to the area, had no idea where the rocks, wrecks or other hang ups might be. Using his WESMAR SS230 scanning sonar, he immediately began dragging the unfamiliar grounds.

"Most fellows like to set their SS230s at a tilt of about 45 degrees, but I usually set mine at 30 degrees with a range of 1,800 ft (550 metres) because I like to see well ahead of the boat," said Captain Johnson. "The range of the SS230 gives me plenty of time to decide between pulling up as I approach some rocks or trying to manoeuvre around them."

Captain Johnson is aided by the SS230's modulated sweep feature, which greatly improves target discrimination, and WESMAR's depth range computer, which helps him determine the depth of fish in the water of the Susan Wood as well as guiding him in setting his net.

"On one trip to California in November," Captain Johnson said, "we picked up a reef on the CRT screen. There was an opening in it with a large rock on the left side and the reef on the other. Using the SS230, we dragged around the reef through the opening for about an hour without hanging up and came out with about 1,800 lb (816.5 kg) of shrimp."

"That's not a record haul," he added, "but we wouldn't have got that without the SS230."

## Sonar helps trawler avoid tangles

THE WATERS off the coast of Ilwaco, Washington, on the west coast of the United States are excellent fishing grounds, but also hide many underwater reefs near shoals that can damage or ruin trawl gear.

Dan Hensley, owner and captain of the 70 ft (21 metre) long trawler Mistasee, has found the answer to avoiding these underwater hang ups by using the WESMAR SS230 scanning sonar he installed several months ago.

"The reefs will really tear a net up quickly," said Captain Hensley. "With my SS230, I can avoid getting tangled up in the reefs."

The SS230 not only gives Hensley the advantage of avoiding costly repairs or new equipment because he can manoeuvre the Mistasee around hang ups, but the sonar also allows him to fish grounds where non-sonar equipped vessels can't go.

According to a WESMAR representative who was in Ilwaco recently, most trawlers fishing in the area average between 40,000 and 60,000 lb a trip, because they fish only those locations with which they are familiar. Captain Hensley, using his WESMAR SS230, recently unloaded an 88,000 lb catch, which the Mistasee brought in because she is equipped with WESMAR sonar, and able to fish areas others cannot.

Using the SS230, Captain Hensley has the advantage of being able to fish where he wants without worrying about snagging his gear.



Fishing out of Ilwaco, Washington, on the United States west coast, the "Mistasee" successfully brought in an 88,000 lb catch on a recent trip using WESMAR's SS230 sonar.

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## Spaniards warned off EEC waters

ARGUMENTS over limits in several of its main catching areas were last month further disrupting Spain's fishing industry.

Spain is one of the worst-lit of Western European countries by the extensions of limits out to the 200-mile exclusive economic zone.

The spread of limits began to be felt in 1976 when the first cuts in fish had to be made off north-west Africa. Then, last year, the EEC claimed its economic zone and arrests of Spanish northern port trawlers off France and later the British Isles became more frequent.

With 113,000 fishermen and a catch in 1976 of 1.54 million tons, the industry is larger than any in the European Economic Community which Spain hopes to join in the early 1980s.

Off North America, despite an agreement with Canada, the Spanish catch dwindled in once-traditional areas.

By the end of 1977, the Spanish catch had fallen to 1.38 million tons. The species that declined revealed the seriousness of this fall to the catch and processor. Cod dropped from 126,838 to 80,362 tons, small hake from

## AND THERE IS TROUBLE WITH PORTUGAL, TOO

164,580 to 99,535 tons, tuna from 31,000 to 9,500 tons, mackerel from 38,000 to 33,000 tons, and squid from 32,000 to 13,800 tons.

But there was little change in the composition of a fleet which includes nearly 100 trawlers larger than 1,000 tons, 85 between 500 and 1,000 tons, and some 1,450 vessels between 150 and 500 tons. It is this fleet of pair trawlers and other medium-range ships which has borne the brunt of the increasing restrictions on operations in the EEC limits.

### Distress

Still arguing among themselves over a common policy, the EEC countries have caused distress to other European countries such as Spain by one of their few collective firm actions in fishing — the quick exclusion of non-EEC vessels from waters which had been

cally increased. As so often happens in such cases, the fishermen decided that their vessels should move into the French sector of the EEC where some two-thirds of the fleet usually fishes.

As FNI went to press, the Spanish government was reported to have lifted its ban.

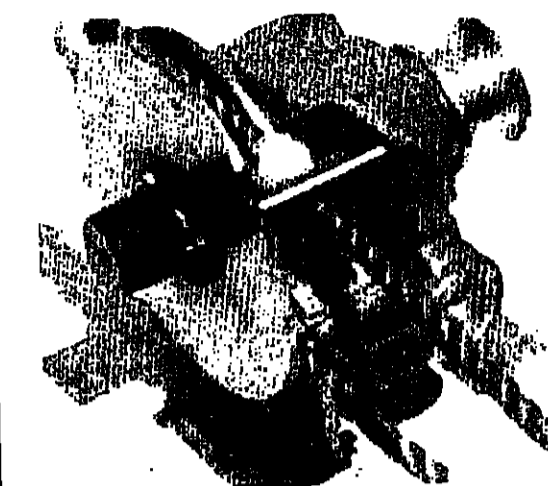
EEC limits are not the only ones causing trouble for Spain. Earlier, five Spanish boats were arrested by the Portuguese and accused of operating between six and 12 miles off the coast of Portugal.

### New law

This dispute is over interpretation of the new fisheries law in Portugal which implements a 200-mile limit, although a recent pact between Portugal and Spain allows fishing craft of both countries to work between six and 12 miles off the coast of the Iberian Peninsula.

In practice Spain does better than Portugal out of the pact. Spanish boats from north and south quickly move in, while few Portuguese vessels went to fish off Spain. Portuguese fishermen are, therefore, urging their government to protect them from a Spanish fishing invasion, by restricting fishing and by a phase-out up to 1985.

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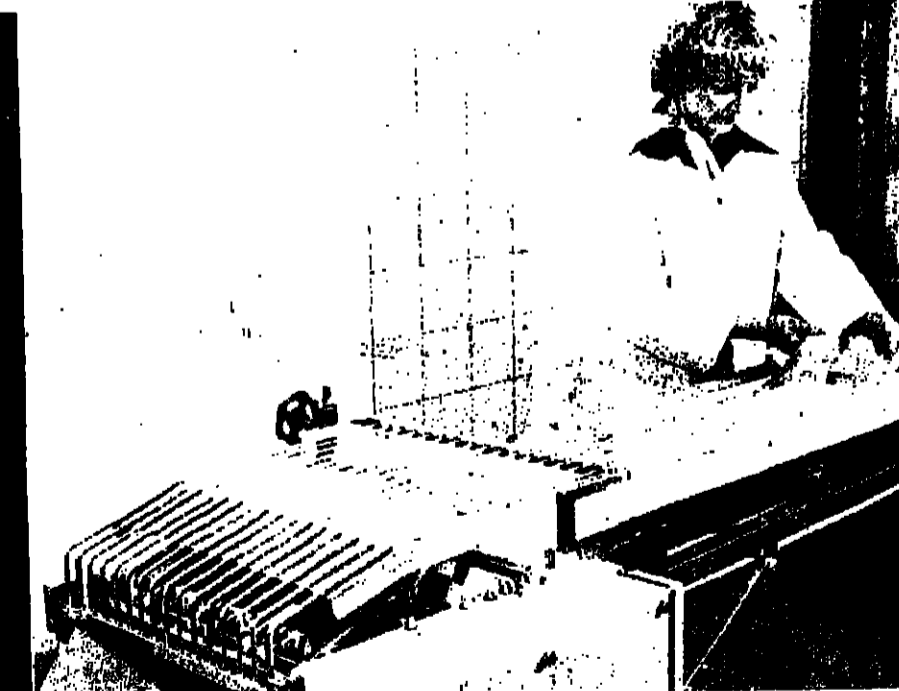
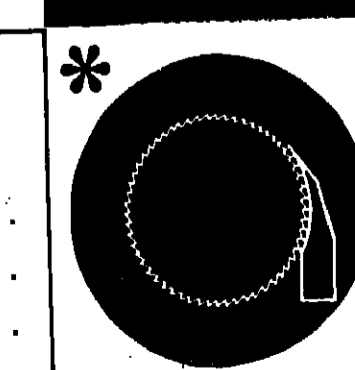
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## FRIONOR

# Fishing orders keep Spanish yards in work

SPANISH shipbuilders are sharing in the world-wide problems of their industry. They will probably start 1979 with an order book of only 700,000 gross tons which represents about 40 per cent of capacity. But some of the smaller yards turning out fishing and other specialised craft have not done so badly.

Vigo is a traditional building centre for fishing craft. There, firms such as Santodomingo Construcciones Navales with 14 vessels and Construcciones Navales P. Friere with six, have lists of orders. Admittedly some of these are at the finishing stage, but the yards have hopes of future orders.

The yard of Hijos de J.

Barreras has been completing the last of the huge order placed by Cuba for super trawlers. The main contractor was the Vigo firm Astilleros Construcciones. The initial order, placed in 1973, was for 21 factory stern trawlers of 106.86 metres overall and powered by 4,000 hp Deutz diesel engines. Sixteen of the

ships were built by ASCON and five by Barreras.

Subsequently, a further five similar ships were ordered, with one to come from Barreras and four from ASCON. The contract, between the state fishing organisation Marpesco of Cuba and ASCON, was believed to be worth the equivalent of more than US\$200 million.

But the ASCON yard has been afflicted with labour troubles among its 1,800 workers. Earlier this year they went on a strike which, by July, had lasted for six months.

### Cancelled

The Cuban trawlers (each worth 660 million pesetas) should have been delivered last year and the Cubans, still waiting in July, have told ASCON that their contract had been broken. As they did in Peru, when labour troubles caused delays in yards there, they said they considered the contract unfulfilled and cancelled their order.

With four partly-finished ships on its hands, ASCON has entered a bankruptcy statement.

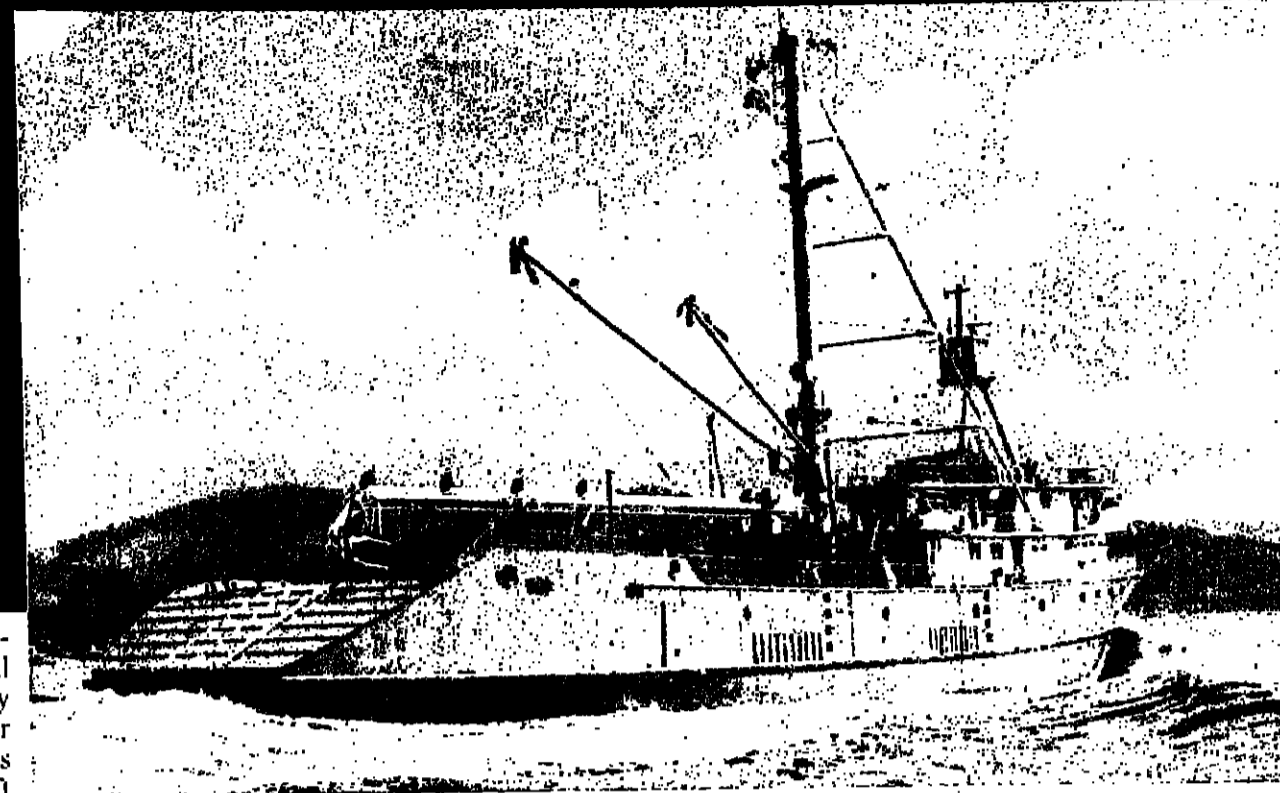
Despite this difficulty, Cuba remains interested in buying from Spain. Directors of Marpesco recently visited Vigo with the aim of placing fresh orders with other yards. The director of the Cuban fleet, Senor don Manuel Nieto, also said they will continue to use Vigo as a repair base.

### Credits

Spain is believed to have made \$150 million available in credits to Cuba, with a third allocated to fishing craft, covering 15 per cent of contract value.

One of the yards which could benefit is Factorias Vulcanas, with 840 workers and three ways for ships of 145, 125 and 58.5 metres long. Vulcanas has built a number of tuna purse seiners and trawlers.

On the Spanish south-east



In recent years, yards in Spain have been particularly active in the construction of large tuna purse seiners. The 76.2 metre *Albacora Cuatro* was built in Vigo by Factorias Vulcanas for Tundós Congelados de Las Palmas. The 1,583 gross ton ship is powered by a 4,000 hp engine and has a speed of more than 16 knots.

## ...BUT LONG STRIKE HITS CUBA CONTRACT

Construcciones del Sureste in Alicante has several vessels on order. The Cartagena yard of Empresa Nacional Bazan is similarly busy, with six 1,500-ton tuna purse seiners among ten fishing vessels building.

The Gijón-Musel yard of Marítima de Musel SA is finishing a 450-ton fishing

vessel. Among its completions has been the two-deck tuna purse seiner *Esperanza*, with a length of 75.5 metres and a carrying capacity of 2,000 tons.

In San Juan de Nieva near Asturias, Astilleros Oceyda Aniceto has 11 fishing vessels on its books, including five small refrigerated trawlers of 250 gross tons each.

Further down the size scale, ten boats of 30 and 40 gross tons each were in the port of Bilbao last month awaiting delivery to Senegal. They were built by yards in northern Spain and it is hoped that Senegal will be placing orders for another 30 or 40 similar boats.

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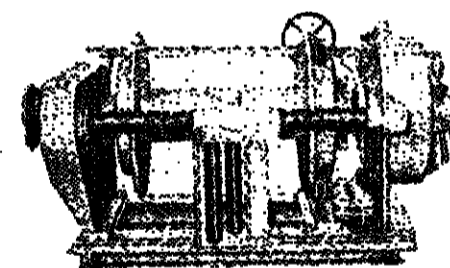
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## Prawning curbed

NORWAY'S Department of Fisheries is refusing any further applications in 1978 for prawn trawling concessions because of the risk of overfishing.

Most of the fishing this year has been in the "grey zone" and the Soviet zone of the Barents Sea. About 150 boats have concessions.

In the first half of 1978, Norway exported about 1,900 tons of fresh and frozen prawns worth 26 million kroner (about £2.5 million), and 1,400 tons of shelled prawns worth 44.5 m. kr (about £4.4m).

## USSR visit

A GROUP of US Congressmen has been to Russia to look at the Soviet fishing industry.

The Americans were particularly interested in seeing how the USSR carries out research into fish resources.

We've seen wood, steel, glass — even concrete, but...

# What about a boat of rubber?

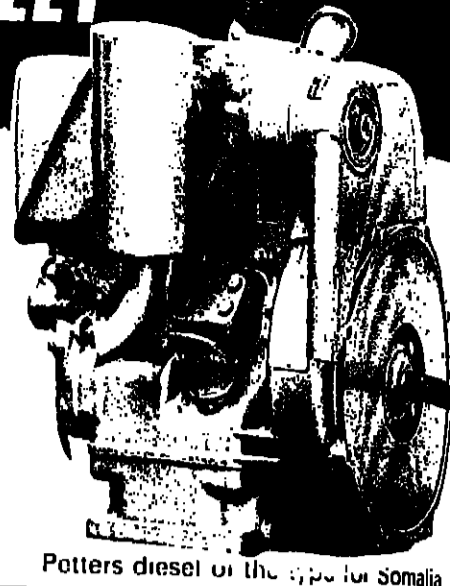
## SOMALIA FLEET RE-ENGINEED

BRITISH small engine manufacturer, Petters Ltd. (Marine Division), has secured its biggest ever export order. The contract is for 150 inboard diesel engines, spare parts and stern gear for inshore fishing boats in Somalia. It is worth very nearly £400,000.

The order, supplied through Britain's Overseas Development Ministry (ODM), is part of a major FAO/UNDP fisheries project.

Petters' low-cost, cast iron, air-cooled engines are type PJ2M, each of 22.5 bhp (16.8 kW).

They are expected to be shipped to Mogadishu over the next few months.



Petters diesel on the type for Somalia

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\* Tetoron is TEIJIN's registered trademark for its polyester fiber & fabrics.

BEFORE long, fishermen in Sri Lanka may be putting to sea in boats made of vulcanised rubber.

The possibilities of using the material are being examined by the FAO/UNDP project for small-scale fisheries in South-west Asia.

The idea behind a rubber boat like ferro-cement is to make best use of local raw material. Rubber is readily available in Sri Lanka.

A private study there has shown that a 28 ft (8.5 metre) reinforced vulcanised rubber (RVR) boat compares favourably, in most aspects with vessels of other materials.

Its payload is 12,680 lb compared with 13,180 lb for a GRP boat of similar size and 7,840 lb for wood or ferro-

cement boats.

The RVR boat appears to be much cheaper to build than the ferro-cement or GRP boats.

"There is considerable interest in the construction and use of RVR boats throughout this region," says Leif Engvall, manager of the FAO/UNDP project.

The design being considered for the fishing boats calls for a framework of steel tubes or hollow sections welded into a rigid unit and covered with mesh.

Plywood can also be used for making the frame, which is then covered with a reinforced rubber compound and vulcanised so that the structure is rigid, light in weight, resistant and of great strength.

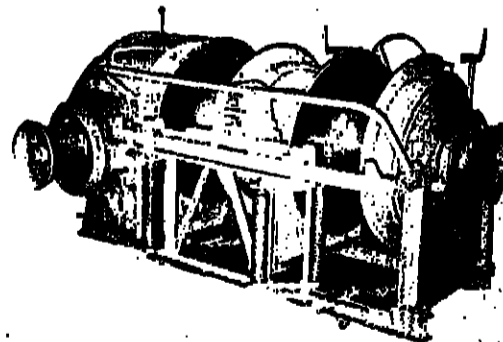
## If you can't beat them...

SOUTH KOREA is joining three international fishery organisations this year in an attempt to strengthen her co-operation with other coastal fishing states.

She is to send a delegation to the Inter-American Tropical Tuna Commission (IATTC) in October, and she will apply to join the International Whaling Commission.

A South Korean delegation will also be sent in December to the annual meeting of the International Commission for the Southeast Atlantic Fisheries (ICSEAF) in Madrid for talks on joining.

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## Confusion as Ministers issue opposing statements...

# LAST-MINUTE HITCH IN NZ-JAPAN FISH-TRADE AGREEMENT

FISHING talks between Japan and New Zealand opened in Wellington on July 20 and continued until August 10 without complete agreement being reached.

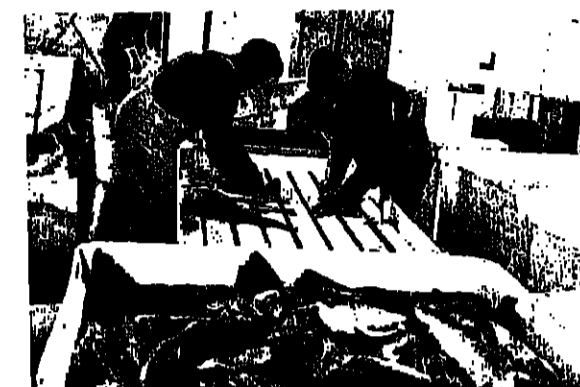
The negotiations followed a recent agreement between the Japanese Agriculture and Fisheries Minister, Ichiro Nakagawa and NZ Prime Minister, R. D. Muldoon on trade relations.

The New Zealand delegation was headed by I. L. G. Stewart, Assistant Secretary of Foreign Affairs. The Japanese party was led by Ambassador to New Zealand Umeo Kagei and included five representatives of the Japan Fisheries Agency and nine advisors from the fishing industry, representing squid anglers, drop-liners, long-liners and trawler operators.

Details of the agreement between Mr. Nakagawa and Mr. Muldoon have not been disclosed. It seemed, however, there was an understanding that there could be more favourable treatment by Japan for New Zealand, over access for primary products such as beef, dairy products and other agricultural products, forestry products and fish.

On August 5, Mr. Stewart and Mr. Kagei announced that they had reached agreement on a text and would be recommending it to their respective governments. They said that the next step would be to prepare clean texts and examine them from the legal point of view.

An unexpected last minute hitch occurred on August 10 when the NZ Prime Minister, the Foreign Minister and Minister of Overseas Trade, B. E. Talboys said that one clause in the agreement was not precise or clear enough. This clause dealt with trading access for New Zealand primary products. A question had arisen about Japan's attitude because of statements made by her Minister of External Economic Affairs, Nobuhiko Ushiba who arrived in Wellington on August 2. The impression gained from these



Gutting large winter season cod in a Lofoten factory. Should supplies come from large trawlers or inshore boats?

## Leave cod

## for the Lofotens

THE PRESENT large-scale trawling of Arctic cod in the Barents Sea is a waste of labour and capital, according to a report published by the Bergen University.

Dr. Rognvaldur Hannesson, the author, sees the question of how best to fish the Arctic cod as being one of great significance for the whole

Norwegian economy.

He says that the spawning cod (skrei) fishery off the Lofotens and Vesterålen in winter is far more efficient than deepwater trawling.

Norway, he argues, must take the lead in striving for a reduction in the size of the trawler fleet — both Norwegian and foreign — by as much as 50 per cent.

statements was that Japan would take a long time to give some relief on duties on New Zealand fish imports and on access to the Japanese market for other primary products.

There seems to be no doubt that Mr. Ushiba's statements have dramatically changed the situation and caused the New Zealand Prime Minister to ask for the insertion of an additional clause into the agreement linking trading

access to Japanese markets to fishing access to the New Zealand 200-mile zone.

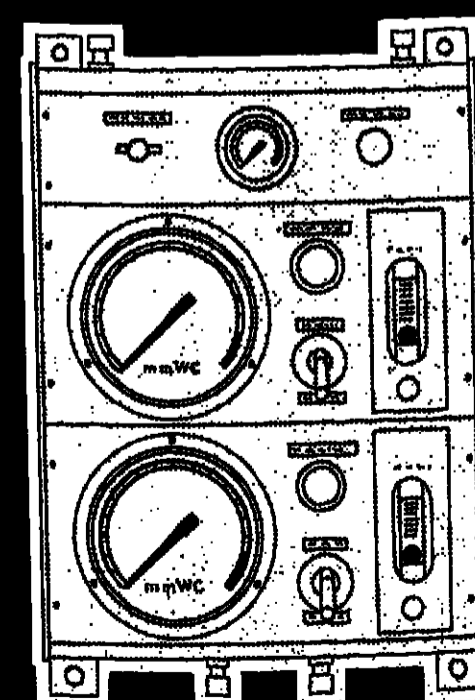
The Japanese government rejected this clause on August 11 and Ambassador Kagei suggested that it was now over to the New Zealand government to re-start the suspended talks.

On August 19, Mr. Muldoon announced that the agreement reached on August 10 would be signed without

the additional clarifying clause being inserted.

However, it seems clear that New Zealand has made her point. While access will not be denied to the New Zealand 200-mile EEZ, the quotas in the zone will have a direct relationship to the degree of progress made by the Japanese in improving access to their markets for New Zealand primary products including fish.

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## Maine cod closure

FISHING for cod in the Gulf of Maine, within the United States 200-mile zone, was stopped in mid-August and will remain closed for the rest of 1978.

The year's cod quota for the Gulf was set at 8,000 tons. This was reported by the National Marine Fisheries Service to have been exceeded by 488 tons by July 31.

Regulations governing the fishery were applied to support the management plan of the New England Fishery Management Council.



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## Fishermen away as their boats burn

SMALL-SCALE fishermen on the island of Kovilmunai in Sri Lanka have had their boats, homes and belongings destroyed by fire while they were celebrating a feast day.

Kovilmunai in the Karathivu group of islands north-west of Sri Lanka depends on fishing to provide a subsistence for its 2,000 people.

### SUMATRA PROJECT GETS UNDER WAY

THE Asian Development Bank has approved technical assistance to study and prepare an integrated fisheries project for the Indonesian island of Sumatra.

FAO is to take part in the project whose first stage will be a comprehensive study of fisheries in the Sumatra area within a review of overall fisheries development in Indonesia.

It will also include an examination of Sumatra's fish resources, marketing, manpower needs and institutions. A six-man FAO team will carry out the study.

Their findings will provide the basis of the second stage — a feasibility study of an integrated programme.

The project should benefit small-scale fishermen and fish farmers, as well as boost supplies of fish for domestic consumption.

Men, women and children all participate in the fishery which supplies dried fish to Kalpitiya, about 30 miles south of their island village.

But once a year they all sail off to the shrine of St. Anthony at Palikandal. This year, while they were celebrating the feast of St. Anthony, fire gutted huts, belongings and boats.

The story, however, could have a happy ending.

After reading a newspaper report about the fishermen's plight, Sri Lanka's Minister of Fisheries, Festus Perera, arranged a visit to the island.

As a result of what he saw, the islanders have been promised aid which could transform their primitive fishery.

## TRAP FISHERY ROW REACHES FLASH POINT

TRAPPING for fish could soon become a hot issue in United States Gulf of Mexico bottom fisheries, reports *FN* correspondent Jeffrey A. Fisher. Initial trials have resulted in good catches — perhaps too good for some.

Pleasure boaters believe the traps are a navigation hazard.

Conservation groups and sport fishermen claim they wipe out the fish on reefs.

Other commercial fishermen say they are a nuisance. Shrimpers say they hinder trawling. But scientific studies support none of this. And the authorities don't know what to believe.

Traps are not new to the south Atlantic and the Gulf of Mexico.

Crawfish and stone crab wood slat traps are customary in Florida, the Bahamas, and throughout the Caribbean area.

Small rectangular wire traps are the principal method of harvesting blue crabs and eels.

### Emotional

A recent flare in tempers among shrimpers and stone crab trappers has highlighted the emotional aspects of the problem.

Authorities had to intervene to avoid more serious problems in the Florida Keys area.

There promises to be a political battle in the various state legislatures over the trap issue in the near future. There may also be some battles at sea.

Meanwhile quick action by fisheries authorities at local, state and national levels has avoided what could have been a violent confrontation in another area in the south.

In South Carolina, pleasure and commercial crabbers were involved in bitter disputes.

### Authorities

### move in

### on US

### catching

### gear

### disputes

over territories. Raising and robbing traps after dark was becoming common. Tempers were high.

To remedy this, the state legislature moved to place certain rivers off limits to commercial crabbers. They also made it unlawful to pull or remove crab pots after dark.

In Florida Bay, shrimpers and crabbers had a bitter dispute over territory. There were even reports of shooting between boats.

The Bay is a good producer of both shrimp and crabs.

### Crab plan

Law enforcement authorities kept the problem under control while emergency measures were taken to prepare a stone crab plan by the Gulf Fishery Management Council.

The Council, the 200-mile limit authority in that area, voted to begin the stone crab fishery management plan immediately.

## No cuts in Sri Lanka's fish prices

THE government of Sri Lanka does not intend to bring down prices of fish on the stalls of the Ceylon Fisheries Corporation. They will be kept the same as prevailing prices.

Minister of Fisheries Festus Perera said at a press conference at the Ministry offices in Colombo last month that the aim is to foster a realistic relationship between the producer and the rates the consumer has to pay. It will also be an added incentive to catch more fish.

Mr. Perera said that he was working on a new programme for the development of inland fisheries. Breeding centres at three sites are to be expanded, and a conference is being planned which will include MPs of all coastal areas.

The Corporation, he explained, owned four trawlers and two tuna

### It's an incentive to catch more, says minister

vessels. Two of the trawlers had been taken out of commission and the other vessels would be put back into service.

To accomplish this and other developments, the Corporation had appealed for private individuals to come forward and work in co-operation with it.

"Unless we collaborate with the private sector, the Corporation will

have to be closed down," he warned.

Commenting on Sri Lanka's present catch, the Minister said that the industry was providing for only about half the country's requirements. The first task of the Corporation was the distribution of this catch at fair prices; the second was to increase supplies.

The Corporation proposed to spend

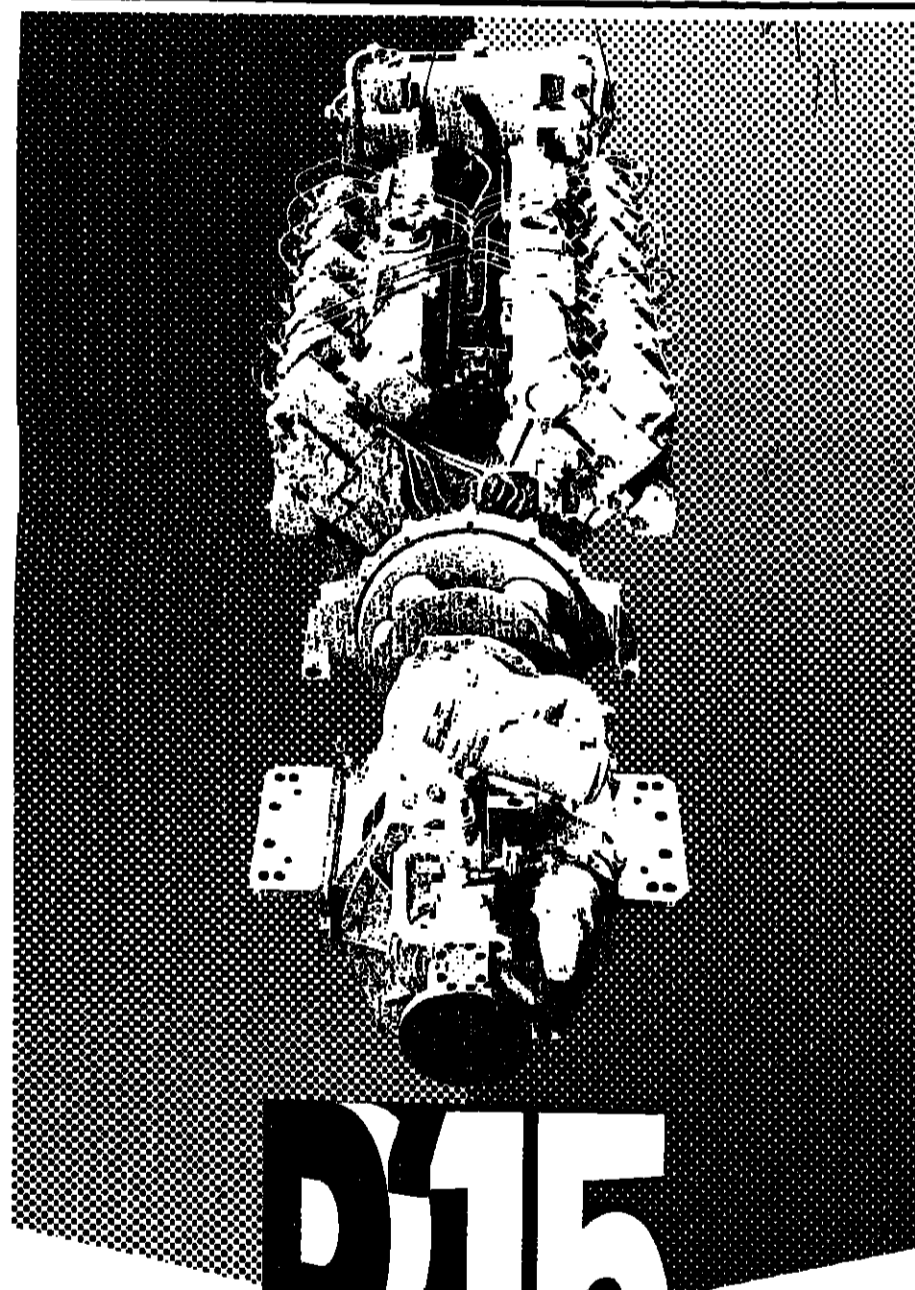
Rs 20 million (about £680,000) for the purchase of engines, nets and other fishing gear as a first stage of development.

Some 2,000 outboard motors were being distributed; and 500 engines of 30hp were also going out to make a much larger catch possible.

Referring to earlier boat-supply programmes, Mr. Perera said that 250 of the 3½-ton boats were out of commission. These, apparently, went to co-operatives, which have failed and the Minister blamed this on the fact that ownership of the boat was always with the co-operative.

"We hope to change the system by introducing a new method," he said. "The skipper of the boat will become its owner once the value is paid."

"The Corporation also plans to introduce a Fisheries Bank where the fisherman can save something for a rainy day."



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401	6 fathom	£126
402	8 fathom	£166
403	10 fathom	£210
404	12 fathom	£260
405	14 fathom	£315
406	16 fathom	£375

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The 200 Series — flatfish trawl, standard for sole, plaice, skate, etc., single boat, two bridle only.

Ref. No.	Groundrope Length	Price
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202	6 fathom	£76
203	7 fathom	£98
204	8 fathom	£120
205	10 fathom	£180
206	12 fathom	£259
207	14 fathom	£328
208	16 fathom	£420

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10ft	£55	
12ft	£67	
14ft	£78	
	£113	



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Ref. No.	Groundrope Length	Price
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803	8 fathom	£225
804	10 fathom	£320
805	12 fathom	£435
806	14 fathom	£570
807	16 fathom	£725

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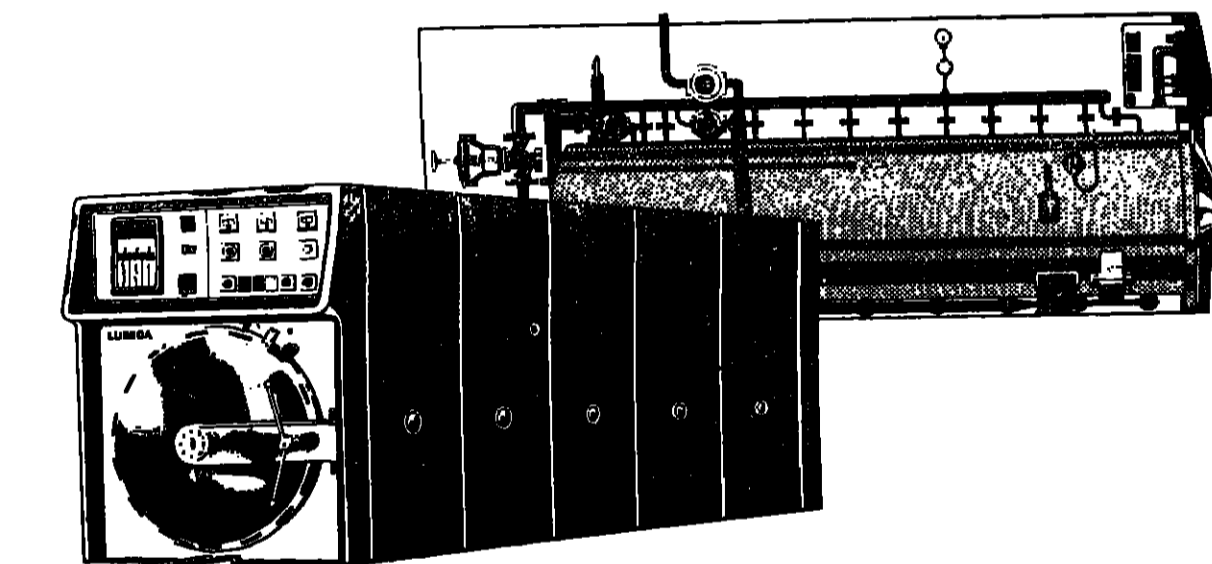
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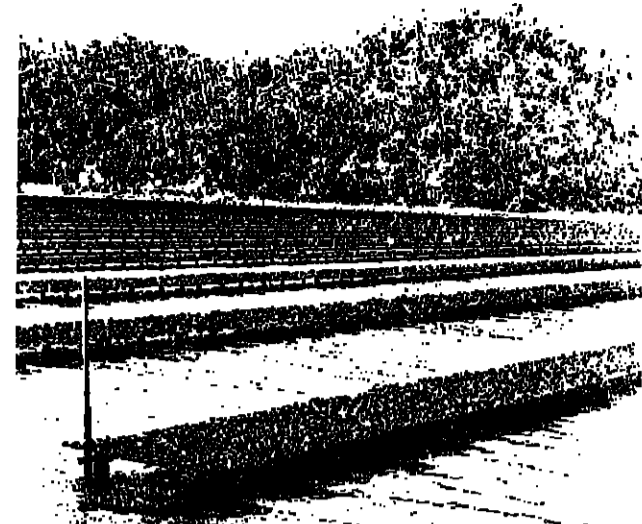
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# SPECIAL REPORT BY PETER POWNALL



Racks of Sydney rock oysters growing near Sydney.

AN OUTBREAK of gastro-enteritis that affected about 2,000 people in five States of Australia in July and August was blamed on Sydney rock oysters.

Since the outbreak, the New South Wales Health Commission and State Fisheries have held discussions to ensure that rock oyster in future will be safe to eat.

Reports of significant outbreaks of the illness initially came from New South Wales and Victoria and later from Queensland, South Australia and Western Australia.

In July, the New South Wales Health Commission confirmed the attacks of gastro-enteritis and suggested oysters as the cause, following which most oyster farmers and distributors agreed to a voluntary halt in sales for two weeks.

The Australian Department of Primary Industry, after consultation with the Health Authorities in New South

Wales and Victoria, suspended exports of Sydney rock oysters (*Crassostrea commercialis*) by refusing to issue certificates of condition. Primary Industry Minister Mr. Ian Sinclair said the move was a precaution until oysters could be guaranteed safe.

About one-third of Australia's oyster exports (worth about \$200,000 annually) go to Hong Kong. Authorities there destroyed stocks of Sydney oysters following the gastro outbreak in Australia. Other shipments to Singapore and London were also destroyed.

Consumption of oysters in Australia dropped sharply after the oyster-caused illness made headlines in all States. One major supplier claimed his lost revenue was \$1,000 a day, and processing staff were put out of work in New South Wales.

Domestic oyster sales in 1976-77 totalled some 10,600 tonnes worth almost \$13 million.

Retailers also noted a slackening in demand for other shellfish. There were early suggestions that heavy rain had flushed effluents into some growing areas, but batches of oysters known to have caused gastro-enteritis attacks could not be traced back to their source.

Some oysters tested in Sydney and Melbourne were found to have unacceptably high counts of the indicating organism *E. coli*. The presence of *E. coli* in large numbers is taken as an indication of faecal pollution.

Later tests suggested the direct cause of the gastro attacks was a virus, but by mid-August tests by the NSW Health Commission and other authorities had not isolated the particular virus.

A further scare was aroused among consumers when the health authorities in New South Wales and Victoria acknowledged there was a possibility of typhoid or hepatitis among people who had previously suffered from the gastro attacks. But no cases of either disease had been reported among gastro sufferers up to mid-August, and the risk was then thought to be slight.

## Standards

The World Health Organisation, and the National Health and Medical Research Council have set standards for oysters but these have not been applied in Australia because there had been no previous problems.

In Victoria, the Public Health Commission announced plans to adopt NHMRC recommendations on bacterial safety. The oysters would be on distributors to prove their oysters were safe to eat. A number of specific recommendations to overcome the contamination problem have been made.

## Labelling

These included:

- labelling of sacks by growers to allow easier identification of sources of marketed oysters;

- a system of classification and certification of oyster beds;

- routine bacterial monitoring and research into an oyster purification system;

- transplanting of oysters from polluted areas to cleaner waters.

In South Australia, the Health Minister, Mr. Banfield, announced on August 3 that, following another outbreak of food poisoning in Adelaide, no oysters would be accepted from New South Wales until the Health Commission could give assurances they were free of contamination.

## LES RIMES

# Australia's oyster sales hit by illness scare

## SALMON BAN PUTS INDIANS ON THE WARPATH

BRITISH COLUMBIA Indians want to take over management of the province's fisheries resources. They allege that before the white man came there were plenty of fish for everybody. Now, the salmon populations have dwindled, pollution is spoiling the rivers, and the white fishermen are hogging the catches.

Along some parts of the Fraser River watershed, the Indians have become so vociferous that they are threatening armed retaliation against federal fisheries agents. But neither the Indians nor the fisheries officers appear, at this point in time, to be gathering arms.

The threat by the fishermen was sparked by the fact that the Chilco sockeye run predictions ran much higher than the actual figures.

## Little left

After United States fishermen had taken their share of the run, and after Canadian fishermen had taken their share of the remainder, the Indians, who normally fished along the riverbanks for food, were told to take-it-easy. Too few Chilco-bound salmon had gone up the river to spawn.

The Indians ignored the government ban on further fishing of Chilco stocks - and caught fish.

According to law, they are allowed to fish for their food. But an executive of the B. C. Wildlife Federation said recently that 300,000 salmon were caught, legally, by the Indians along the Fraser River system. This had totalled about 2.4 million pounds, which is enough to give every Indian man, woman, and child about 218 lb. of salmon a year!

He believes that the Indians have not reported their illegal fishing and estimates they have taken a total of more than seven million lbs. a year. If his figure is correct, it means the Indians must be selling the fish illegally.

The Indians say they are harassed by the fisheries officers. "We will meet violence with violence," says George Manuel, president of the British Columbia Indian Chiefs. "For too long the government has ruled our lives and our homes."

Chief Manuel says the Indians fish only for their own needs, with conservation always in mind.

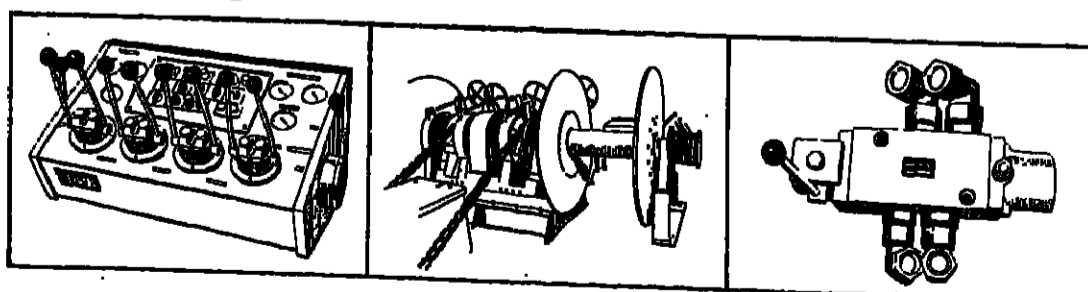
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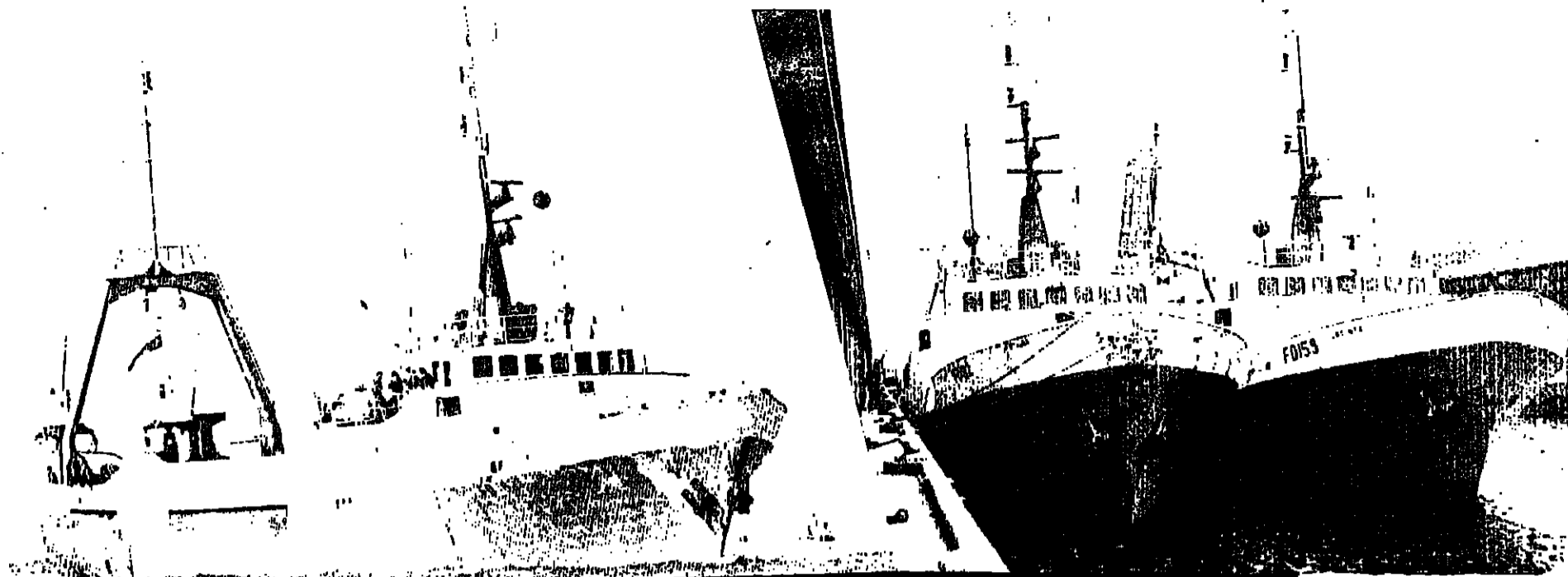
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TWO BRITISH wet fish stern trawlers operating as a pair team set a record for the English north-west coast port of Fleetwood when their combined catches were sold for £79,814.

The ships are the *Gavina*-class trawlers *Jacinta* and *Fydeas*, owned by J. Marr and Son and commanded by Skippers Bill Taylor and Victor Buschini, Jr.

These 46 metre (151 ft.) long trawlers were built in the early 1970s. They are powered by English Electric diesels.

It was the *Gavina*-class which might be said to have begun the era of the British medium-size high performance wet fish trawler. Ships of this type and smaller appear to be adjusting best to the drastic changes in the pattern of British deepsea trawling.

The pair took their record-breaking catch in a trip of 15 days to the waters around Shetland.

They came back with 178 metric tons and this broke the earnings record of £73,985 set by another Marr trawler pair.

## Held in Beira

SPANISH fishing vessels were in difficulties off the south-east coast of Africa last month. Three boats, believed to be shrimp trawlers, were held in the Mozambique port of Beira accused of contravening fishing regulations.

Giving news of the arrests, the local radio said that two of the boats were alleged to have been operating without authorisation in Mozambique waters. The third was accused of landing catches in South Africa.

## Nigerian offer

A NIGERIAN mission has made an offer to fishermen in Birmen, Spain, that they should come and fish under the Nigerian flag, train crews and other workers, and assist in providing high quality protein for 85 million people.

The mission was headed by the Commodore of the Nigerian Navy, Edwin Keniebe, who assured Spanish fishermen that they would work under the full protection of the Nigerian government and armed forces.

Part of the proposal includes the possibility of constructing a large fishing port at the mouth of the River Niger.

Meanwhile, Spain has been getting business from another African country. It is reported that Spanish yards will be building 15 vessels for Angola.

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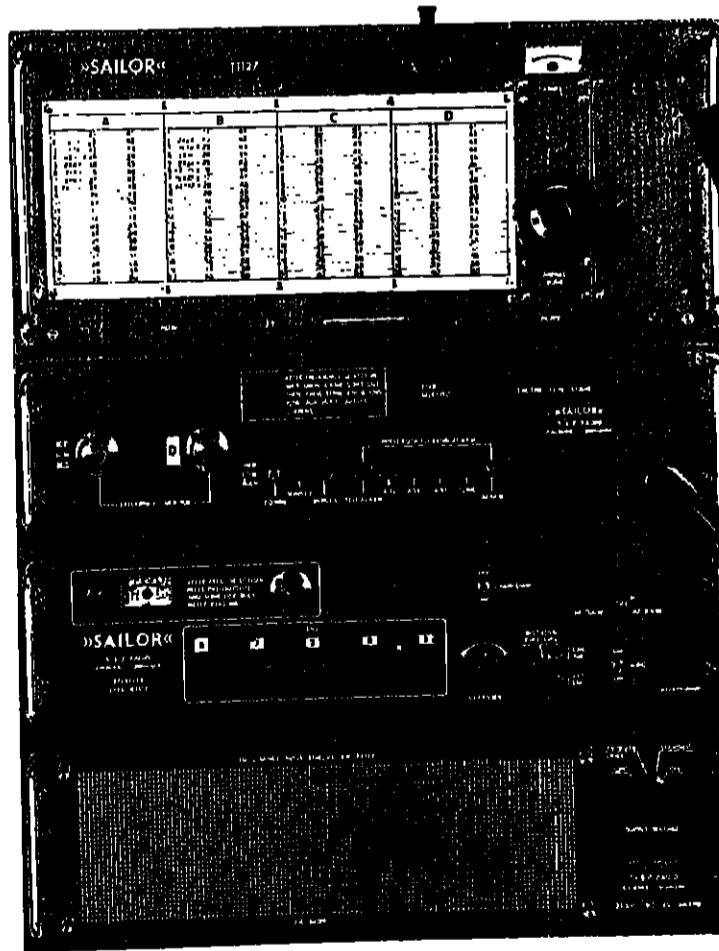
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# FLEETWOOD TRAWLERS SMASH RECORD

RIGHT: The pair in port. Working together, the Marr trawlers *Fydeas* (left) and *Jacinta*, set a new earnings record for Fleetwood of nearly £80,000.

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# Four long years and the show goes on...

from the dockside  
BY PETER HJUL

THE continuing show goes on. More than four years since it began its first full series of meetings in Caracas in 1974, the United Nations Conference on the Law of the Sea last month started another session in Geneva.

For most of the world's fishermen and their industries, the now general acceptance of a *de facto* 200-mile exclusive economic zone has taken most of the interest away from the UN Conference. But I think we should resist the temptation to regard it as no more than an academic talkshop, its future obscure and its origins fading in memory.

It was the conference that revealed the consensus over the 200-mile EEZ. And this led to claims

over wider limits by most coastal states. But the unilateral EEZ remains a selfish and untidy way of resolving problems of jurisdiction and of distributing the wealth of the oceans.

It does not, for example, settle the argument over the share of countries that are landlocked or have coasts so small or confined that they can derive no benefit from wide EEZs.

There is also no solution in unilateral claims to the problems of islands, of median lines or of disputed areas such as the "grey zone" off northern Norway and Russia.

As we have noted before in *FNI*, offshore islands can cause enormous difficulties. Thus, Argentina has just told the UN Secretary-General that her negotiations with the United Kingdom

will suffer if the UK applies a 200-mile limit around the Falkland Islands. The government on the other hand, is under growing pressure to protect these waters and perhaps provide a new outlet for British vessels hit by limits extensions elsewhere.

Unilateral EEZs do nothing about the status of so-called high seas fish, the ocean wanderers such as the tunas; nor do they help countries planning expensive hatchery projects to enhance salmon stocks by ranching.

These and other urgent matters need to be encapsulated in a High Seas Convention. And this is why the UN Conference continues.

It is now being said they may have to go through two more sessions next year, before all the delegates go back, as promised, to Caracas in 1980 for the formal signing.

## Norway surimi—cost problems

TALKING about the British work on surimi for Japan in July *FNI*, I said that unfortunately Norway had yet to develop a food use for blue whiting, "but I would be surprised if marketing leaders such as Leiv Birkeland of Frionor have not been watching what the British and Japanese have been trying to do at Stornoway."

Leiv Birkeland is the marketing director of Frionor, and I have not known him to miss any opportunity of finding outlets for Norwegian fish. I should therefore have realised that Frionor would be doing more than merely watching blue whiting food tests.

### Too early

Working with the Japanese firm Nissui, Frionor produced surimi in Fegersund in July 1977. According to Leiv, technically, the tests were a success; economically, too early yet.

In producing fillets and minced fish from blue

whiting, the Norwegians went through the same stages as the British.

"We were quite optimistic at first," says Leiv, "until we ran into the economics. Until we see a technological breakthrough or some considerable change in the market, it is very difficult to make these products pay their way."

### Easiest

He adds that minced fish seems to be the easiest food product to develop from blue whiting. But so far it has not been able to compete "price-wise" with mince from trimming necks, etc., from traditional species, which still offer unused potential.

Meanwhile, to establish a regular food fishery for blue whiting (even if on a more limited scale), Frionor has produced and sold round, whole fish for markets where such a product fits into an existing pattern of consumption.

"We have some success with this," reports Leiv, "and hope to see more."

## SEALS—GETTING THE BALANCE RIGHT

IN MARCH, I criticised the Council of Europe decision to ask member countries to ban sealing for two years. I was interested, therefore to receive a short paper titled "Seals in Danger" from the Council's European Information Centre.

It was written by Dr. Jan L. van Haaften, a biologist specialising in seals, and I thought it would explain

why the decision was taken. I was treated instead to a brief, well-informed, objective outline of the seal problem.

Dr. van Haaften says that the only seal population in Europe really in danger is that of the Mediterranean Monk seal.

Other European seals are under threat but not entire populations.

"In Europe," he says, "we can no longer speak about exploitation of a

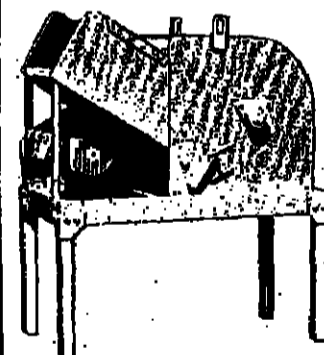
seal population, although culling takes place yearly in Norway, Iceland and the UK." He regards this as necessary to reduce damage by seals. "It is essential," he adds, to keep the Grey seal population of the Farn Islands at a certain level as otherwise they cause too much damage to the salmon fisheries.

Hear, hear. But where does this leave the Council call for a stop to seal hunting?

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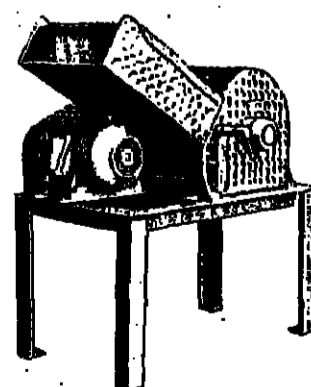
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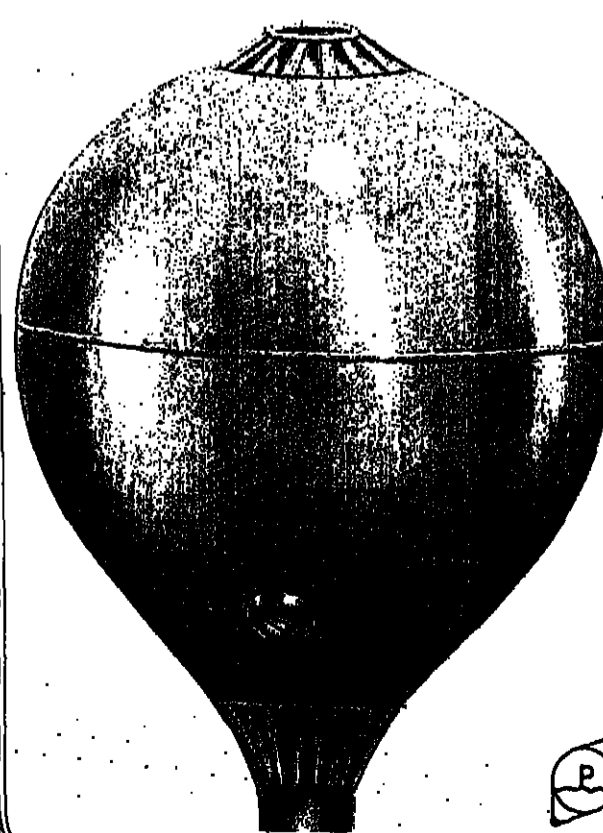
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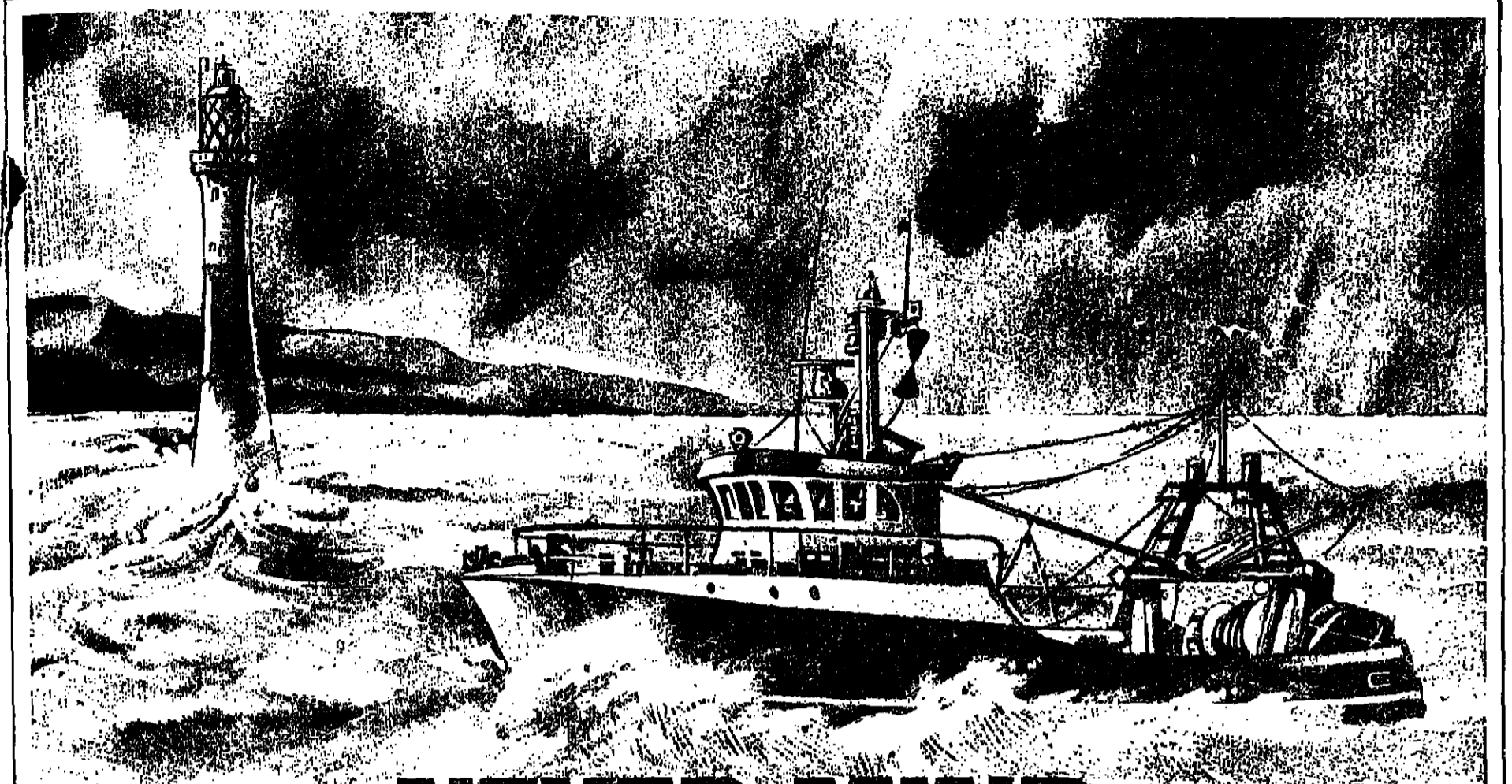
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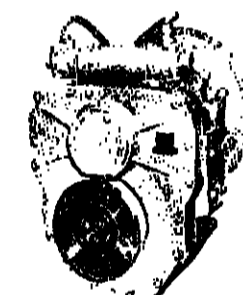


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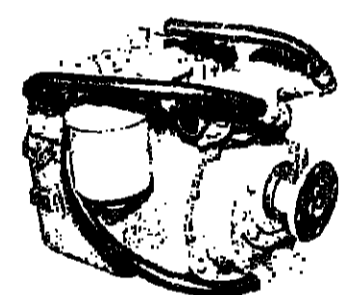
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# PILCHARD SLUMP IN NAMIBIA

WHILE South West Africa moves through the delicate stages of the constitutional changes that will remove the country from South African control to eventual independence as the nation of Namibia, her fish resources alone in Southern Africa lack the new protection of a 200-mile economic zone. With the changes impending, South Africa excluded the Namibian coast when she extended her fishing zone last year. The result is that attempts to conserve seriously depleted stocks of species such as the pilchard are being frustrated by an armada of foreign trawlers. At least, this is how it is seen by the industry and its fishermen working out of the port and fishing base of Walvis Bay. The problems of this industry were outlined by **MICHAEL STUTTFORD** in *FN* in July. They continue without any early prospect of solution, as he reveals in this later report.

OUT of the fiasco of the 1978 pilchard season off South West Africa (Namibia) has come determined action by the interim administration to try and prevent the total collapse of the pilchard resource.

The Administrator-General stopped the land-based industry catching pilchards from July 7,

closed the season a month ahead of schedule on July 31, and more than halved the total quota of all pelagic fish.

SWA fishermen accepted the restrictions, but they had two reservations. They pointed out that there was an abundance of anchovy readily available, and that the fish were highly migratory. This attempts to conserve stocks for spawning and next year's harvest could be thwarted by natural factors such as a

change in currents or in water temperatures.

Local fishermen were also furious that they had to stop their fishing while a fleet of more than 170 trawlers continued.

The total shoal fish quota was set at 410,000 tons and was filled before the end of July when the season closed. But this included only 46,000 tons of pilchard compared with 194,300 tons in 1977 and 447,300 tons in 1976.

Although this year's performance appears disastrous, it is believed that the effort on the pilchard was only about a third of that of recent years.

Nevertheless, it is accepted that the once-great pilchard stock has been reduced to a dangerously low level. This depletion has been caused by over-exploitation as a result of lack of knowledge.

## Catches rose

After the collapse following the 1.5 million ton onslaught in 1968, catches rose from 250,000 tons in 1971 to more than 500,000 tons in 1975.

Initially, it appeared that recovery was being allowed to proceed along a safe and reasonable course. With hindsight, it was a disaster course.

The recovery which was believed to be taking place was apparently based on over-spawning years 1968 to 1972. It now thought that this summer was wrong. Egg and larva production were probably poor.

There is little doubt in the minds of fishermen that natural conditions over the past four years, coupled with heavy exploitation, and aggravated by the activities of foreign vessels, have led to the present low state of the pilchard resource.

The hope is that environmental conditions will remain favorable, that foreign vessels will be conservation efforts, and that politicians in SWA will take appropriate action in the future.

## Council

This action has already been initiated by the formation of the Advisory Fishery Council for South West Africa.

"We are going to put the industry back on its feet," says secretary, Ben Pienaar, acting for the Administrator-General. "We are going to be tough, but we are going to be fair."

Meanwhile, once a year, whatever the immediate cause, we are looking at the long-term potential for the country.

Meanwhile, once a year, whatever the immediate cause, we are looking at the long-term potential for the country.

Meanwhile, once a year, whatever the immediate cause, we are looking at the long-term potential for the country.



Director of Fisheries, Knut Vartdal — back to the family business.

# Vartdal quits as Norway's Fisheries Director

## HALLSTEIN RASMUSSEN WILL TAKE HIS PLACE

THE Norwegian fishing industry was astonished early in August to learn that Fishery Director Knut Vartdal is not seeking re-appointment when his five-year term in the post ends on October 1.

He is to leave government service and return to the family business, which is the operation of a factory trawler and purse seiner from Vartdal, near Aalesund.

Mr. Vartdal was only 32 when he succeeded Klaus Sunnataa in 1973. During his period as director, Norway has gone through one of her most difficult periods in commercial fishing. It has been a period of intense negotiations, with the USSR, with other Nordic countries and with the EEC over catch quotas and over the effects of the 200-mile economic zone.

His decision, reports *FN* correspondent Nick Wade, has aroused considerable surprise and has stimulated speculation both over the reasons and over Mr. Vartdal's future.

He was often the advocate of a tougher line in fishery matters than pleased the Foreign Ministry. With the Foreign Minister and the Law of the Sea Minister increasingly taking over important

negotiations, the Norwegian press sometimes wondered out loud who was Fisheries Minister.

Mr. Vartdal would not comment on his decision.

His successor will be assistant director Hallstein Rasmussen.

Born in Romsdal in 1925, Mr. Rasmussen has been with the Fishery Directorate since the early 1950s. He has represented Norway on numerous occasions in international fishery meetings.

Mr. Vartdal's announcement came soon after the news of the departure of another Norwegian from a top fishery post. As reported last month, Herman Watzinger has resigned as head of the Department of Fisheries of FAO.

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# AUSTRALIA OUT OF WHALING

AUSTRALIA'S only whaling station is to close. Executives of Cheynes Beach Holdings Ltd., which owns the station at Albany in Western Australia, said operations will stop "in the near future."

This was revealed to an Australian Government inquiry into whaling on the first day of its hearing in Albany. According to executive director John Saleeba, the decision had been made for economic reasons. Two directors, who had visited Europe recently, had found there was a trend away from sperm whale oil to substitutes.

## Investigating

The company's agents were investigating the market trend and were to report in August. This report would determine whether or not the company could continue for the rest of the season, which ended in November.

About 100 people are employed at the Albany plant. Mr. Saleeba said that demand for sperm whale oil had fallen and current prices were below the cost of production. Cheynes Beach Holdings would make a loss in 1978 and was not likely to make any profits next year.

**Quota cut**

The company will also be affected by the quota cut in 1979 which will cut production by about 1,000 tons.

But Mr. Saleeba did not expect the Albany station closure to end whaling in the region. Soviet and Japanese whaling fleets would probably continue this activity.

The International Whaling Commission, Division 5, which stretches from the equator to the south pole between 133 deg. E and 90 deg. E (roughly the South Australian border to the mid-eastern Indian Ocean) has been worked only by Australian whale catchers since 1976. The 1979 quota of 561 whales in the division would revert to the IWC to be reallocated.

## Russians breaking mesh rules — Norway

REPORTS from the Norwegian Coastguard allege that Soviet vessels fishing in the disputed economic zone around Svalbard (Spitzbergen) are not respecting international regulations on mesh size.

The Coastguard says it has given written warnings to skippers of seven vessels boarded and inspected. The vessels will not be arrested. But if further small-mesh nets are found, there will be a protest to the USSR.

Early in August some 40 Soviet ships were taking large amounts of redfish and were not reporting catches.

# Australia to tighten coastal surveillance

AUSTRALIA is bringing in a major programme to improve surveillance and enforcement of the waters off her coast.

The upgrading, explained Minister for Transport Peter Nixon, followed consideration of a detailed report on civil coastal surveillance and enforcement capabilities.

"The changes reflect the government's concern over increased evidence of smuggling, unauthorised landings, quarantine breaches and other illegal activities along Australia's northern coast," said Mr. Nixon.

"They also take account of the need to enforce our fishery laws when the 200-mile Australian fishing zone (AFZ) is proclaimed.

"Our approach to the surveillance problem seeks to achieve maximum practical effectiveness at reasonable cost."

The new programme includes:

Introduction of daily air searches of northern coastal areas between Geraldton (Western Australia) and Cairns (Queensland) by civil aircraft on charter to the federal government.

Extension of aerial surveillance

by RAAF long-range Maritime patrol aircraft to cover the 200-mile fishing zone and to meet other special requirements.

An increase from seven to nine in the number of RAN patrol boats directly available for civil surveillance and enforcement.

The appointment of the Minister for Transport as the Government spokesman on the nature and adequacy of civil coastal surveillance matters and the improvement of surveillance management.

Improvements in surveillance

and intelligence collection which would improve and extend existing voluntary reporting systems and encourage wider general public reporting.

Continuation of existing surveillance activities specifically directed to the detection of Indo-Chinese refugee boats.

The programme will involve additional expenditure of about \$5 million a year for chartering civil aircraft. As well as this, greater use will be made of existing Defence Force resources, the cost of which will be absorbed in the Defence budget.

## SQUID VENTURE OFF TASMANIA

JAPANESE and Australian interests are to co-operate in a squid fishing feasibility study off Tasmania. This is the first feasibility (experimental) fishing proposal approved under the guidelines for the pending extension of Australian fisheries jurisdiction out to 200 miles.

The study is expected to begin in September and could continue for up to two years, depending on a complete review of operations and results at the end of the first 12 months.

The venture was announced in a joint statement released last month by the Federal Minister for Primary Industry, Mr. Ian Sinclair, and the Tasmanian Minister for Primary Industry, Mr. Eric Barnard. They said they had approved the study after consultations between the Federal and Tasmanian governments.

Eight Japanese squid-jigging vessels will work off Tasmania to determine the possibility of developing a commercial fishery. The Japanese will be joined by two Australian vessels and the catches will be handled by a joint-venture company, Tasmanian Fisheries Company Pty. Ltd. and the National Federation of Fisheries Co-operative Associations of Japan (Zengyoren).

The squid jigging operation would not conflict with existing Australian fisheries; nor was it likely that the Australian industry could mount a similar operation in the foreseeable future, the Ministers said.

## 'G.O. Sars' stopped

THE NORWEGIAN fishery research ship G.O. Sars was stopped in the Soviet zone of the Barents Sea this summer by a patrol ship.

According to the commander of the G.O. Sars, Captain Sivert Mørch, the ship was asked to identify itself. The Russians then checked the trawl and seemed baffled by the very fine mesh net used for sampling fry.

## Trawler leases

THE Indian government is reported to be considering allowing owners of imported trawlers to lease their vessels to other owners.

According to the Economic Times of New Delhi, this is banned under existing policy but a relaxation could lead to better utilisation of these vessels.

The aim of the restriction was to prevent importers doing no more than serve as chartering agencies. Even if leasing is permitted, the large business houses will probably be excluded.

## Oil site trials

THE Fishery Technology Research Institute in Norway last month initiated two to three weeks of test fishing in the area of the Ekofisk oil platform and near wrecks in the North Sea.

An extensive zone in the centre of the Ekofisk and satellite fields, covering about 17 sq. km, was closed earlier this year to fishing boats using dynamic gear.

Fish are known to congregate around platforms, and offshore installations have in fact at times provided an expected sanctuary for shoals. The 300-metre security zone around installations has prevented fishing by seines and trawls close to platforms and rigs. Boats that have shot nets near platforms have been reported to the police.

But the Norwegian Fisheries Directorate has no risk in the use of stationary gear.

# USA curbs sales to foreign factory ships

## Veteran from the quieter days



TO REMIND us of the quieter days of fishing before EEZs, the EEC, quotas and factory trawlers, *FNI* correspondent Pat O'Driscoll sent this picture of a Dutch Zuyder Zee botter seen on the IJsselmeer.

The boat was built at Huizen early this century for a fisherman from Durgardam (near Amsterdam).

To the purists, her appearance is not exactly typical of the period. The poop is a little lower than was customary. The mast is weak and has had to be stayed. The mainsail is from another type of craft. And the leeboards come from the southern province of Zeeland.

This boat has been acquired by the municipality of Huizen. She is to be restored as a monument to the local fleet and fishing industry.

## USSR cuts fleet off Canada

THE Soviet fleet fishing off Canada has been reduced to about quarter its former size since the 200-mile zone came into force in January 1977, said Alexei Volkov, USSR fisheries representative in Halifax.

Some of the ships have been transferred to southern areas and to grounds off Africa, he added.

According to Mr. Volkov, the Soviet fishing industry provides jobs for about one

million people — in the ships, in shipbuilding and repairs, in processing and in distribution.

Its backbone is a fleet of 3,000 ships of about 100 tons and 20,000 smaller craft.

He said that the Soviet Union had teams of scientists carrying out fisheries research off Canada because it regarded this as necessary. All countries operating in Canadian waters should conduct research and share their information.

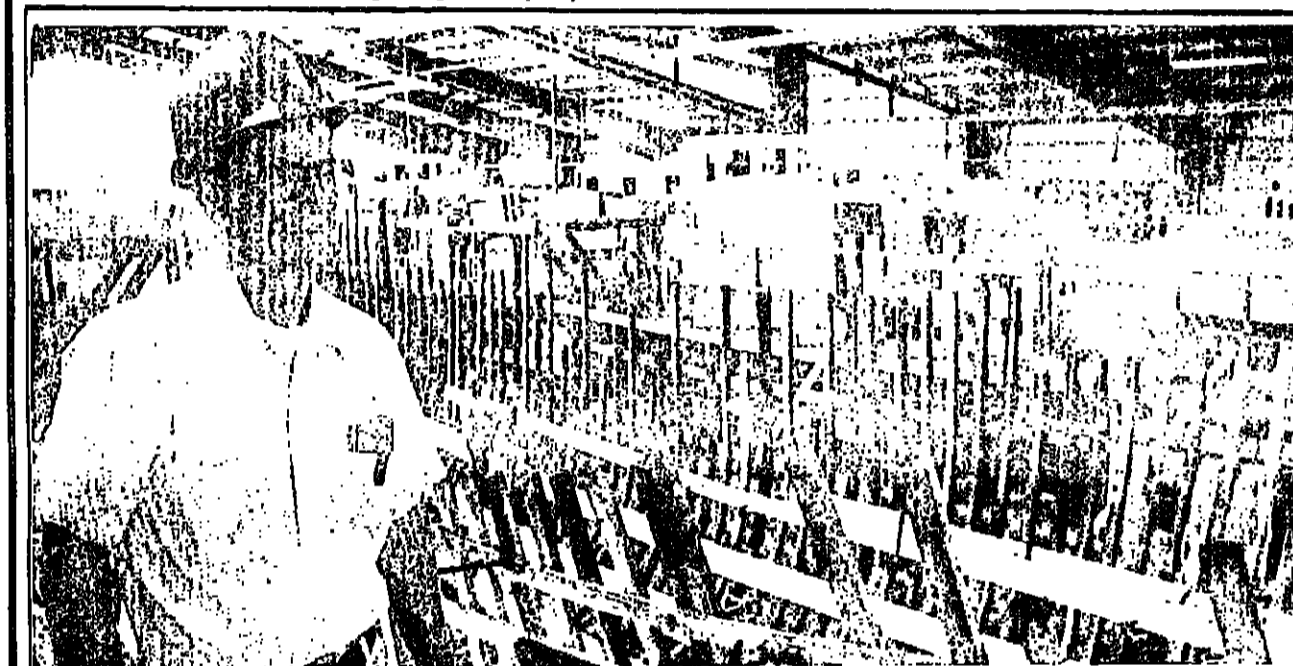
## Ban on small shrimp

THE Indian government may soon prohibit the netting of shrimp smaller than four grams in an attempt to prevent the further depletion of the species in coastal waters.

According to the *Business Standard* of Calcutta, the government and the Marine Products Export Development Authority (MPEDA) are concerned at the "indiscriminate" trawling of shrimps along the west coast. It is feared that this is destroying the growth-cycle of the species and could upset the ecological balance of the fish population along the coast.

It is alleged that some operators, having denuded the west coast of shrimp, have moved to the east coast. Among them are several big companies.

In addition to this fishing, the latest threat to shrimp in the east coast economic zone is systematic poaching by foreign trawlers.



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# How the USSR improves on nature...and spreads salmon from the Pacific to the Arctic



Roe of calico or chum salmon is extracted for incubation in one of the Sakhalin hatcheries. This fish is being introduced to many rivers which previously did not support salmon populations.

# RUSSIAN RANCHING

As world interest grows in the development of salmon stocks through ocean ranching, scientists and fish farmers in the Soviet Union report further progress in spreading these valuable species far beyond their native waters.

During 1978, hatcheries on Sakhalin Island and the Kuriles in the Soviet Far East introduced 800 million young salmon into the Pacific. And two species of Pacific salmon have been introduced into the Arctic Ocean and the Caspian Sea.

GENNADY PISAREVSKY reports on progress.

## Billion fry is Far East target

THE FATE of the Pacific salmon is fortunately not so lamentable as that of many other oceanic species.

The population is growing. And Soviet fishery scientists have also succeeded in acclimatizing Far East calico (*Oncorhynchus keta*) and humpback (*O. gorbuscha*) salmon in waters of the Arctic.

### Complex

This complex operation will take years to complete. It will be of importance to many other countries as well as to the USSR.

Having become Arctic dwellers, salmon not only spawn in the rivers of the Soviet north but have appeared in Norway and Sweden.

Far East salmon have also been acclimatized in the Caspian Sea.

This year fish experts of Sakhalin Island and the Kuriles stocked the Pacific with 800 million calico and humpback fry. Preparations are now being made for the new season by cleaning natural spawning places, repairing equipment and exchanging experience.

The first fish farm was started on Sakhalin in 1928.

### Incubation

Incubation takes about 20 days. During this period a constant temperature has to be maintained. When there are frosts, the ice has to be cut so that the supply of water from the river is not interrupted. Parasites have to be combated and the acidity of the water checked.



Workers remove dead eggs from a newly-arrived batch in a hatchery in the Kurile Islands.

Fry hatched from the eggs — about 25,000 per square metre of water — are fed into the sea in four or five months. Initially, after hatching, they are placed in ponds where they are sheltered from predators, such as other fish. There they are fed on fresh roe of Alaska pollack.

### Larger

Fry grown in the ponds have a greater weight and size than their wild relatives. This enables them to stand up better to the rigours of their migrant life in the ocean.

In May, the fry are released, usually at night and after heavy rain when the water in the river becomes turbid. This helps to protect them from carnivorous fish.

Sakhalin marine scientists and hatchery experts have

succeeded in introducing calico salmon into rivers where this species did not spawn before. While the humpback or pink salmon tends to wander on occasions from its source river, the calico or chum salmon does not. It always returns to the river from where it set out to sea.

Realising this, the experts artificially bred fry in fishless rivers thus considerably enlarging the spawning areas of this valuable species.

Experiments have now started on the artificial breeding of chinook or king salmon, another important Pacific food fish.

### Marine farms

In addition to the ranching of salmon, aquaculture workers in the USSR report

considerable progress in coastal marine farming. Farms in the Baltic republics, for example, are growing trout in sea cages at a concentration of 10 to 20 kg per square metre.

Along the Azov and Black Sea coasts, several farms now raise the hester, a hybrid from the small sturgeon and the big beluga sturgeon. The hester has no offspring and so the beluga is used for reproduction.

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TOP: Research workers at the Pechokalych Reserve mark a salmon to follow its movements.

LEFT: A research worker at the Institute of Marine Biology on Sakhalin investigates the migration and reproduction of salmon.

## THE LATEST NEWS ON FISHERIES

During the period 20-26 November The 7th International Fisheries Fair, Nor-Fishing '78, will be held in Oslo. This is a trade fair of a high, international standard, where you will meet people from all over the world, with a strong interest in and knowledge of the fisheries industry. Nor-Fishing is considered to be one of the leading fisheries fairs in the world. Large and small firms present their products and news for the fisheries industry, and you will have a unique opportunity to find out about the very latest news in this field. In conjunction with the exhibition we invite you to participate in the seminars to be held at The Sjalyst Centre.



### The International Nor-Fishing seminar: POST-HARVEST TECHNOLOGY AND INVESTMENT IN DEVELOPING FISHERIES

20th Nov. Film presentation: TARGETS FOR FISHERIES DEVELOPMENT. Opening dinner — Norwegian evening. (Special registration is required. Admission Nkr. 200.-).

### 21st Nov. POST-HARVEST TECHNOLOGY

Speakers: F.A. Peterkin, Project Coordinator for IORC, Guyana Food Processors Ltd., Guyana; Dr. Wolfgang Krone, Chief, Fish Utilization and Marketing Service, FAO, Italy; Mrs. J. Maud Kordyias, Officer-in-Charge, Food Research Institute, Ghana; Carl Lovdahl, Managing Director, FIDECO Fisheries Development Co. Ltd., Norway; Ahmed Kamari, MARO, Malaysia.

The first session will be devoted to the improvements of post-harvest technology in developing fisheries and to means of expanding the use of underexploited resources through more efficient handling and preservation systems, new products and processing methods and better market identification and promotion. The question of reducing post-harvest losses and the use of trash fish and unconventional species will receive particular attention.

### INVESTMENT NEEDS IN DEVELOPING FISHERIES

Speakers: Ducksoo Lee, Chief, Agriculture

Division, South Asia Projects Dept., The World Bank, Washington D.C., USA; Dr. Eng. H. Nilsen-Moe, Norconsult A/S, Norway; T. Ofotokuma, Managing Director, Niger Sea Food Ltd., Nigeria; Tengku Ubaidillah bin Abdul Kadir, Director General of Fisheries, Ministry of Agriculture and Fisheries, Malaysia; Miss Aida Eld, Senior Adviser, FAO Investment Centre, Italy.

The second session will discuss the specific investments required by developing fisheries in infrastructure, processing, distribution, storage and marketing facilities and how the necessary transfer of technology in both hardware (capital items) and software (know-how) might be best achieved. Representatives of developing countries will have an opportunity to express their views on the needs of their fisheries for investment in post-harvest technology.

22nd Nov. THE FUNDING OF INVESTMENT. Speakers: Per Gustavsen, Director, Council of the Regional Banks of Norway, Norway; Zaki Azam, Project Manager, Fisheries and Livestock Projects Dept., Asian Development Bank, The Philippines; Julio Luna, Chief, Fishery Sector, Inter-American Development Bank, Washington D.C., USA; Arvid Flagestad, Director, Ekspertlinn A/S, Norway; Ahmed H. Radwan, Economic Adviser, Abu Dhabi Fund for Arab Economic Development, Abu Dhabi, United Arab Emirates.

The third session will consist of a review of potential international collaboration and assistance in funding these investment needs. Consideration will be given to criteria for investment project preparation, to the role of joint ventures and similar arrangements, to the funding activities of international and commercial banks and to such associated factors as suppliers' credit systems and credit insurance scheme.

Proceedings and discussions at the International seminar will be in English. Seminar fee: Nkr. 1,200.-, papers and luncheons included. Registrants will be charged 10% of the registration fee upon cancellation.

### The national Nor-Fishing seminar: (in Norwegian only) EXPANSION POSSIBILITIES IN BLUE WHITING FISHING

24th Nov. Resource possibilities in blue whiting fishing. Area of distribution and catch possibilities. Fishing rights and economic importance. Catch-technical conditions. Gear and catch techniques. Fish-finding equipment. Products and markets. Panel debate on catch techniques and requirements of equipment.

The participation fee for the national seminar is Nkr. 200.-, papers and luncheon included. Please return the filled-in coupon below. We will send you the invoice with confirmation of your participation. Seminar programs subject to alteration.

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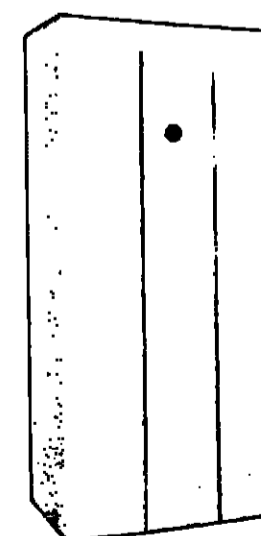
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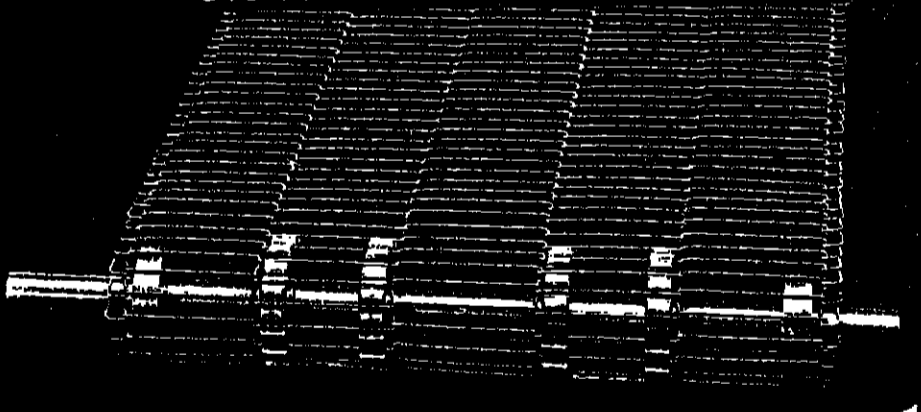


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## Marine buyers form own association

A NEW international association for marine purchasing managers has been formed in the United Kingdom.

To be known as The International Marine Purchasing Association (IMPA), it developed through an article in the journal *Marine Stores International*, which asked why marine buyers did not have their own professional body.

There was a quick response with offers of support from a number of countries.

Membership (costing £10 a year) is for managers and their immediate deputies in charge of marine purchasing in vessel owning or operating companies.

Further information from Vivian Raven, hon. secretary, IMPA, Queensway House, 2 Queensway, Redhill, Surrey, England



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## TRAINING TOPICS

A "new dimension in maritime training" - that's the new 14-metre long vessel developed jointly by Redifon and Watercraft Ltd., in the UK. She bridges the gap between shore-based simulation and fully operational ships.



# A simulator that goes to sea

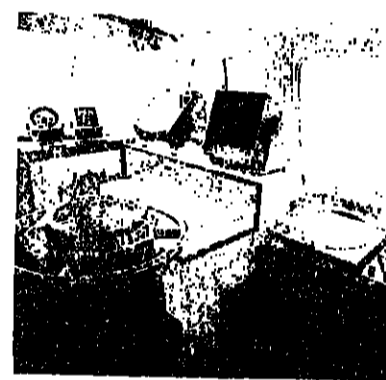
TRAINING fishermen in navigation and the use of electronic fish finding instruments is one of the uses seen for a new type of small vessel jointly developed by two British companies. Introduced last month in London, the new boat aroused considerable interest among those who travelled on her demonstration trips on the River Thames.

Described by her developers as a "new dimension in maritime training," the 14-metre long vessel is a combined venture by Redifon Simulation Ltd. and the builder Watercraft Ltd.

She is intended to bridge the gap between the more traditional shore-based training establishments and that of fully operational ships.

Although the prototype is directed mainly to the needs of merchant navy and naval training establishments, the two firms have made it sufficiently versatile to be built and equipped as an aid to the training of fishermen in a simulation of a modern, sophisticated fishing craft.

A member of the Redifusion group



Inside the vessel's wheelhouse. This is the instructor's position.

of companies, Redifon is a leading firm in the manufacture of marine training equipment and simulators.

Over a period of 40 years, Watercraft has built more than 12,000

small vessels, mainly workboats for many different duties.

The training vessel is fitted out as closely as possible to simulate a larger ship.

Her design is based on a 14-metre heavy-duty workboat hull which has a large carrying capacity and good seakeeping qualities.

The standard vessel is offered with twin or single General Motors diesel engines giving a speed of 12 knots.

In the demonstration vessel, equipment was supplied mainly by Decca. It includes RMI 1216C radar with two slave displays, Sirius master gyro compass with three repeaters, Sallor radio telephones, Decca Navigator receiver, and Simrad EN echo sounder and NI doppler log.

## Plugged-in

Other electronic equipment can be fitted and plugged in, including Omega Loran C or satellite navigator.

For fishing training, this equipment can include fish finding echo sounders and sonar. The boat can also be equipped for oceanographic studies or, presumably, for training in them.

For these duties, simulated inputs can be superimposed on live equipments.

Depending on the configuration, up to 12 trainees can be given practical instruction at any one time on a rotation arrangement.

Trawl seen from the front.

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DANTRAWL are now producing a new type of floating trawl which is revolutionary in its concept. All the wing meshes have been replaced by longitudinal lines, as illustrated in the drawing. This has been made possible by a new method of calculation which results in the perfect distribution of the load at all points of the trawl.

This method of construction greatly reduces the water resistance and allows the trawl to be towed much faster, or a much larger net to be used with a given amount of power.

The trawl is strong, stable and energy-saving, and catches have been in the region of 25% to 70% better than the conventional style of mid-water trawl for herring, sprat, mackerel, sand lance and pilchard. This net can also be used as a single boat floating trawl.

DANTRAWL have been leaders in the development of mid-water trawls in Denmark and this new design is a further step in their traditional business.

## DANTRAWL

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## EXPORT CURBS LIFTED

HIGH PRICES being paid for certain kinds of fish have persuaded the South Korean government to relax export restrictions.

These controls stabilise domestic supplies from the country's growing fishing industry by preventing sales abroad of species needed on local markets.

Thirteen types of fish and shellfish were listed as prohibited exports; nine

other species were under restriction.

But prices abroad have been well above those offered locally, and the industry has been going through hard times over the past year as 200-mile limits have taken away important grounds.

The Office of Fisheries has therefore lifted controls on ten kinds of fish exports, including tuna, Alaska pollack, and cuttlefish.



## What a whale of a model!

FROM fishing boats to whales, and the C-Flex GRP moulding system again demonstrates its remarkable versatility.

This lifesize model in glassfibre of a fin whale was for a long time the dream of a San Francisco whale preservation group. They wanted a realistic model so that people would have an idea of what a whale looked like.

Then, Seaman Plastics of New Orleans developed the C-Flex glassfibre plank. This can be used for building fishing and many other types of small boat without a mould.

Flexible, lightweight and relatively easy to apply, the planking made it possible to mould a lifelike whale.



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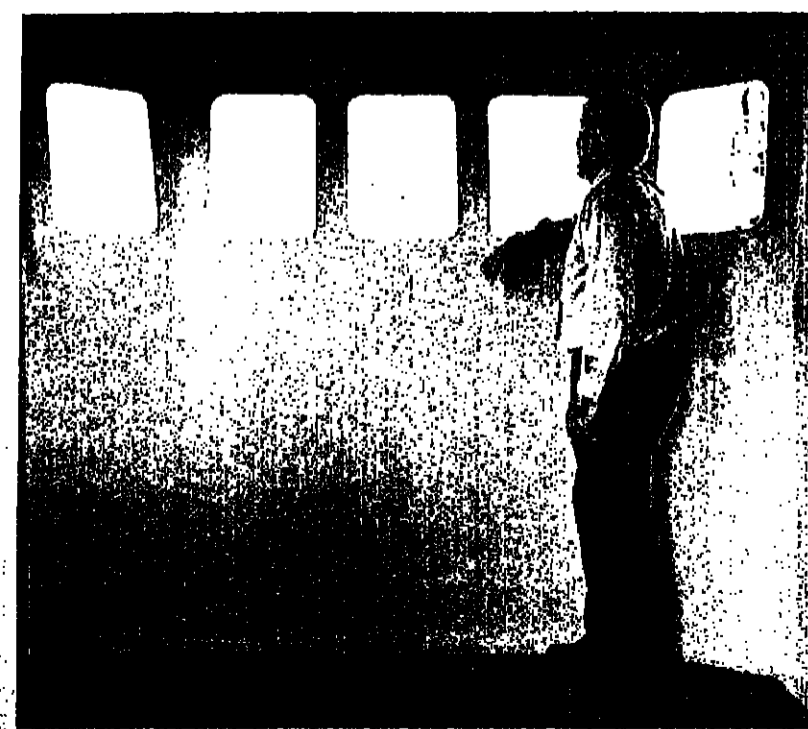
## VERSATILITY WORKBOATS OF RYE

Come to the Southampton Boat Show 18-23 September, where this wheelhouse can be seen on the Versatility 35 completed by Rank Marine International at Pontoon Berth No. 115.

Contact: Versatility Workboats of Rye, Rye Yacht Centre, Rye, Sussex, TN31 7HJ, England. Telephone: Rye (079-73) 3336.

for drawings and specification of this wheelhouse and other sizes that are on the way.

Price £2,400 ex. V.A.T. ex works.  
Delivery: 4-6 weeks.



Designed by Versatility Workboats of Rye, moulders of fishing vessels since 1969.

A maintenance-free wheelhouse for those building a new fishing vessel of 35'-60' in length, or replacing an old wheelhouse where the sea water or condensation drips onto the V.H.F. radio, echo sounder and radar.

It is of G.R.P. sandwich construction, and has 'built-in' thermal and acoustic insulation.

The dimensions of the sole are: fore to aft 9' 2" (2.79m), width 7' 3" (2.21m).

The structure is moulded in one piece and is entirely self supporting, no additional stiffening is required, not even for the sole when hatches are cut from it for access below.

Window and door apertures cut to customers' requirements. No internal lining is required as the surface is smooth. If the ship's cook sets fire to the fat in the frying pan, assuming the galley is in the wheelhouse, it will not burn.

A coating of Scott Bader's Firecure 75 p.a. (included in the price) easily achieves a Class 2 rating under B.S.476: Part 7: 1971.

With no frames, no floor bearers, no beams and no lining the space within needs to be seen to be believed, when compared with other forms of construction.

Fixing windows, consoles, clocks and barometers etc., is no problem. This can be by the use of self-tapping screws, direct bolting to the G.R.P. or through bolting, whichever method is most suitable.

The weight of the structure as shown in the photographs is approximately 1600 lbs.

# NOW FISH COSTS MORE THAN STEAK

## OECD reveals a dramatic turnabout

IN THE United States, a pound of haddock fillet is dearer than a pound of sirloin steak, and canned sardines cost twice as much as the

same amount of whole chicken.

Last year, in the developed countries, the average price of fish in the shops jumped by

more than any other protein food. The rise in the United States was 11 per cent — well above that for meat, poultry, fruit and vegetables.

Members of the Organisation for Economic Co-operation and Development (OECD) accounted for around 25 million tons of the total world catch in 1977.

The Organisation's eleventh annual Review of Fisheries — recently published in Paris — shows how this was achieved.

It starts with a general survey and statistics. But the bulk of the 250-page book comprises individual reports on the 21 member countries.

kilos, from the record 5.9 kilos of 1976.

The main fall was in consumption of fresh and frozen fish products, mainly from other countries.

Reviewing the fishing industries of its 21 member countries, the Paris-based Organisation for Economic Co-operation and Development (OECD) finds that over the last 20 years fish has moved from being one of the cheapest sources of protein to one of the most expensive.

And it can no longer be said that the increases in price have done no more than to bring fish and fish products into line with other foods.

With the prices as they are, it is not surprising that per capita consumption of fish and fishery products in the United States fell to 5.11



Processing mackerel aboard a fish factory ship off the English south-west coast. The OECD sees this as a new trend in fisheries arising out of the extension of limits.

## Limits begin to bite

APART from being hit by soaring costs and prices, the fisheries of the OECD also felt the full impact of the spread of limits out to 200 miles.

They faced the problem of reduced landings from overfished areas and the changes in species, methods and vessels arising from the new coastal state regimes.

One obvious change reflected in the OECD's eleventh Review of Fisheries has been the cutback in distant water fishing as the new economic zones begin to bite.

Where foreign fishing has not already been brought almost to a standstill, larger shares of catches have been going to fishermen of the coastal states and less to foreign fleets.

Looking at joint programmes and ventures, the OECD review finds the

main activity centred on tropical and southern areas, with the private sector providing the prime movers in the more industrialised countries.

Although not among the joint ventures, the delivery of mass-caught fish by local vessels to foreign factory ships or carriers is seen as an interesting new development arising from extensions of limits.

The OECD mentions the supply of fish to Russian and other Eastern European mother ships and activity, trawlers as an example of this activity.

There were signs that this type of operation could become quite common, giving the approval of coastal governments and, of course, ample stocks of the required species.

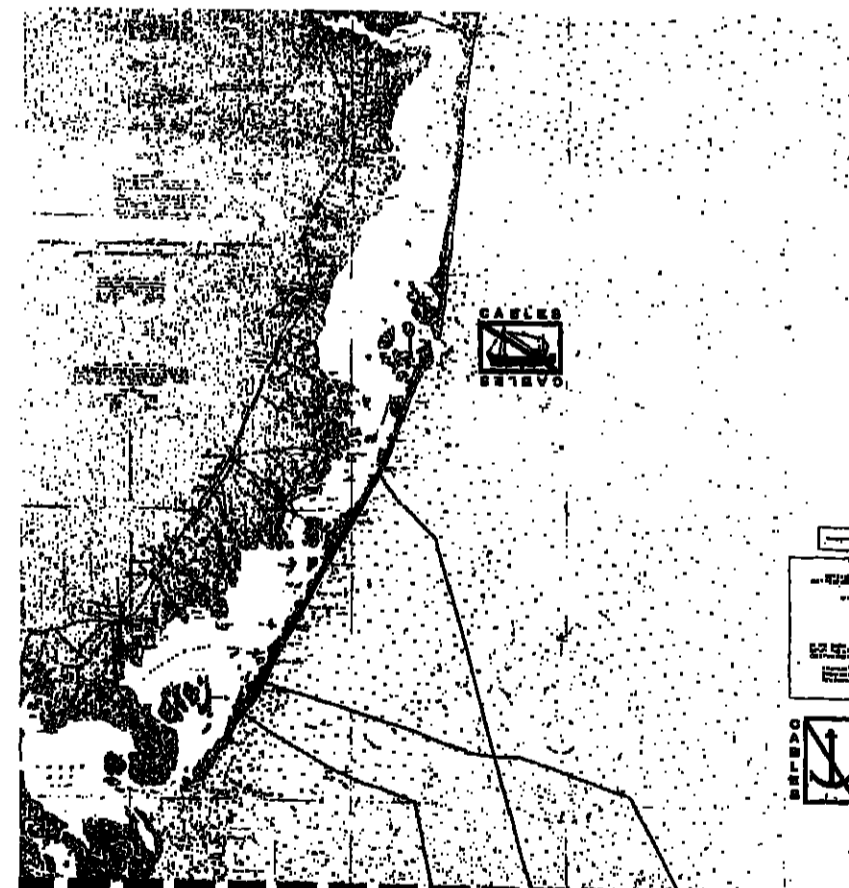
Overtures to obtain similar concessions were reported from the United States, Canada, New Zealand and elsewhere.

Another consequence of wider limits is the growth in coastal fleets, mainly in the 50 to 100 gross ton category. This is seen to reflect realisation of the potential of coastal fisheries by professionals and non-professionals, frequently encouraged by financial aid provided by governments anxious to make the most of their extended fisheries.

One report from member countries quotes 706 vessels being built for United States owners in 1977, compared with 556 the year before. Only nine of the boats in 1977 were more than 100ft. long. Yards were expected to work to capacity until 1980 on the orders already placed.

The overall impression, notes the review, is that transformation to a new regime for marine fisheries, which was going relatively smoothly in 1976, became more troublesome in 1977.

## Please don't cut the cable.



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 12323 Sea Girt to Little Egg Inlet State \_\_\_\_\_ Zip \_\_\_\_\_  
 13003 Cape Sable to Cape Hatteras Phone Number \_\_\_\_\_  
 13218 Martha's Vineyard to Block Island Vessel \_\_\_\_\_  
 14007 Cape Race to Cape Sable Type of Business \_\_\_\_\_  
 14017 Grand Banks of Newfoundland \_\_\_\_\_  
 14023 Island of Newfoundland \_\_\_\_\_  
 17400 Dixon Entrance to Chatham Strait \_\_\_\_\_  
 18480 Approaches to Strait of Juan De Fuca \_\_\_\_\_  
 18520 Point Arena to Trinidad Head \_\_\_\_\_  
 18640 San Francisco to Point Arena \_\_\_\_\_  
 18700 Point Conception to Point Sur \_\_\_\_\_

Bell System

## DRIFTER FINDS A BERTH



FOR ALL the herring that is now available around the British Isles, the Yarmouth steam drifter *Lydia Eva* might as well have been trying her luck on the River Thames in London. But fishing days are long past for this 48-year-old survivor of the times when herring abounded off the East Anglian coast.

The *Lydia Eva* was built at Kings Lynn in 1930. She is 96ft. long and driven by a reciprocating steam engine.

She worked in the North Sea until the outbreak of World War II.

She avoided the fate of most of the other drifters, which went like the distant water side trawlers of

today, ready procession to the breaker's grave. During the past seven years, she has been laid-up in the port of Great Yarmouth. There, early in August, she took aboard four tons of fish. She steamed south to the mouth of the Thames then up the river to Katherine's Dock near Tower Bridge.

She will have a permanent berth there, as part of a floating museum planned by the Maritime Trust.

Well-preserved, clean and neat, she may not appear exactly as she did in her more arduous fishing days, but her engine will remain in her, in working order. And she may from time to time, be taken from her berth to sail again.

London welcomes a sturdy boat from the past

## engel nets worldwide



Pelagic ENGEL-NET on a 400hp stern trawler in Australia.

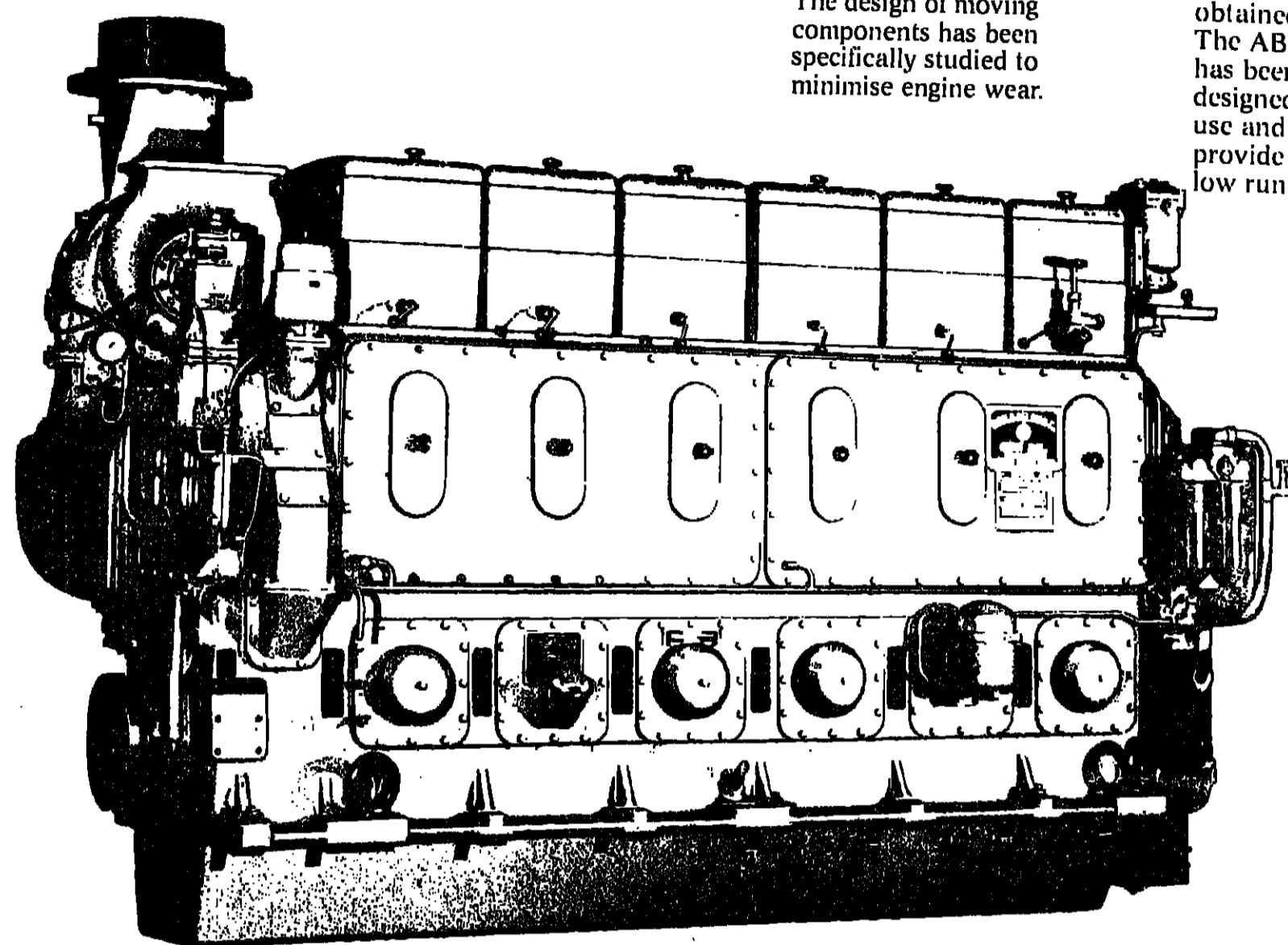
Midwater trawls, Pair trawls, Bottom trawls, both pair and single boat. High opening bottom trawls (Engel balloon trawls)

All nets can be supplied ready to fish with floats, weights, bridles, trawl doors and with bobbins for hard ground.

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# There's more to them than meets the eye.

## The 6MDX engine



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The design of moving components has been specifically studied to minimise engine wear.

**Medium speed**  
Maximum power is obtained at 750 rpm. The ABC MDX engine has been specifically designed for marine use and therefore will provide reliability and low running costs.

**Very low lube oil consumption**  
We claim to be the lowest of any engine within our range.

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Average 162 grammes per horsepower/hour with all accessories fitted.

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Ensures correct lubrication of all working parts which results in a longer interval between services and less engine wear.

## ABC marine propulsion engines.

Some things about ABC engines you can see at a glance.

The superb design, for instance, for easy maintenance and servicing. And the precision engineering, which makes for ABC's unrivalled reliability.

But there's a lot more to them than meets the eye. Things like their incredible economy, remarkable quietness of operation, excellent torque characteristics—all this means superb value for money.

In addition there is a comprehensive after-sales service, with trained technicians available for routine servicing or in the unlikely event of a breakdown.

Find out more about ABC engines.  
There's a lot more to them than meets the eye.

Quite simply the best value for money you can buy.

The ABC engine range consists of  
DX 600—750 RPM. 185—1200 HP  
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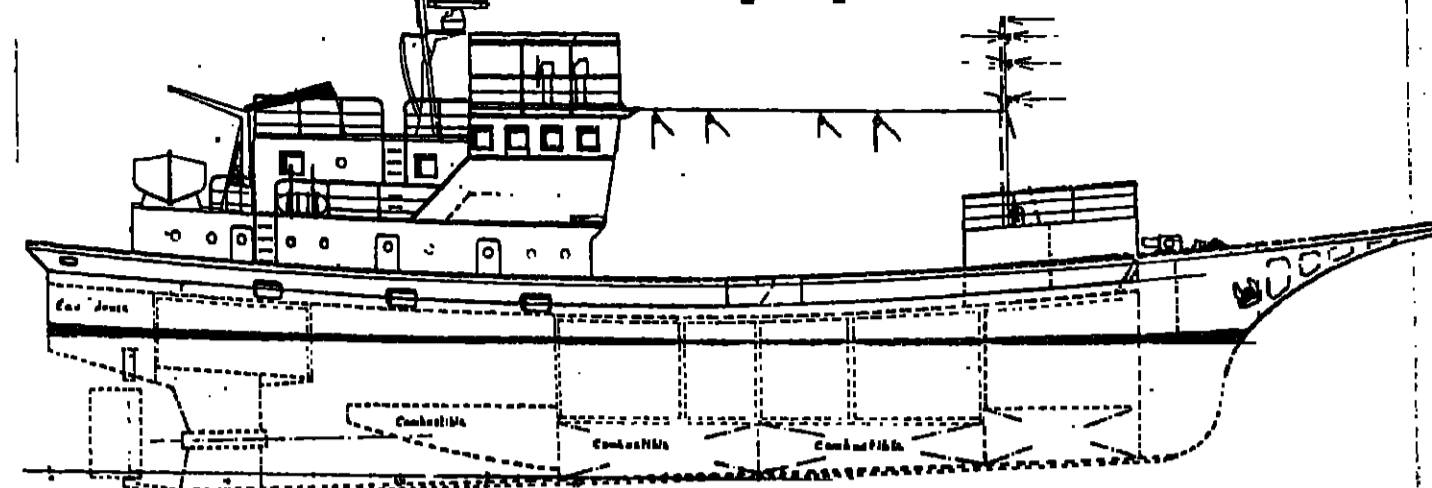
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## BOATS & BUILDERS

### Four pole and line fishers for island aid project

FRENCH YARDS  
START  
SEYCHILLES TUNIA ALGER



FRENCH YARDS are to build four 38-metre long tuna pole and line fishing vessels as part of a big international aid project in the Seychelles.

The ships will form the hub of an island fleet that will eventually produce 15,000 tons of frozen fish a year — mostly skipjack — for shore-based canneries.

The four new vessels are the French contribution to the project which involves the establishment of a £6.5 million fishing operation at Victoria, capital of the Seychelles (see *FNI* July 1978).

Britain's Ministry of Overseas Development is also participating to the tune of £1.4 million for the construction of shore facilities.

The yards involved in the order — with two ships each — are Ateliers et Chantiers de la Manche (the old SICCA yard) at Saint-Malo and Chantiers Normands-Reunis at Courceilles.

#### Principal characteristics

length overall	38.0m
waterline length	32.5m
breadth	8.3m
depth	4.4m
loaded draught	4.4m
main engine	1100hp
speed	11.5 knots
fuel capacity	90m
fresh water capacity	15m
complement	29 men

Four of the tanks are also to be used for live bait and these will have water renewal installations.

Accommodation is provided for a crew of 20 below main deck level.

#### Planked decks

Built of all-welded steel with iroko planked decks, the vessels measure 38 m. (125 ft.) long overall by 8.3 m. (27 ft.) beam and 4.35 m. (14 ft.) depth.

They will be powered by an MGO type 175 V 12 BSHR diesel engine of 1100 hp at 1500 rpm turning a fixed-pitch propeller through reverse reduction gear. Speed at 430 tons displacement will be around 11.5 knots.

The electric circuits are fed at 220/380 V, three-phase, 50 cps by two 150 kVA generators and a 25 kVA harbour set.

Each vessel will have eight refrigerated and insulated fish tanks independent of the hull and placed either side of a central gangway. The catches will be brine frozen using ammonia cooling coils.

#### Live bait

Freezing plant will comprise two compressors (97,000 Fg/h at -10 to +25 deg. C); two sea water pumps and two condensers.

There are quarters for three men, along with officers' mess, galley and crew's wash house, on the main deck, and the skipper and chief engineer have cabins on the upper deck.

Fishing stations are located on the port side, aft. Racks for the rods, fish ponds and a watering ramp are provided.

Radio equipment includes a 400-watt transmitter receiver, watch-keeping receiver and vhf transmitter-receiver.

There is a 32-mile radar, satellite navigation receiver, two ultrasonic depth indicators, gyro compass and autopilot.

Steering is electro-hydraulic with standby hand pump and the rudder is of the plain balanced type.

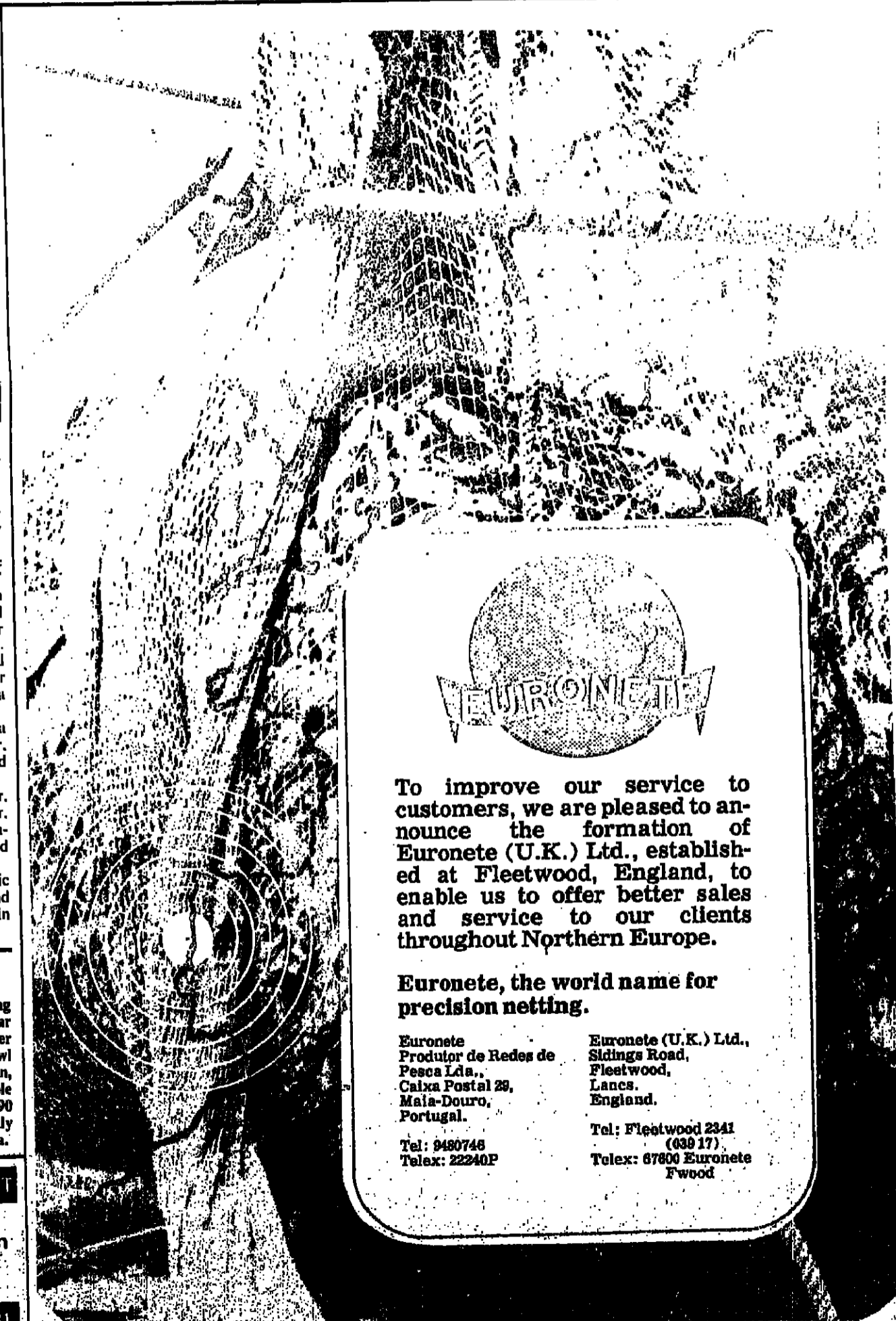
#### WINCH ORDER

THE Scottish engineering firm, Northern Tool and Gear Co has secured an export order for a combined seine and trawl winch for Port of Spain, Trinidad. The winch, suitable for any fishing boat of 50 to 90 ft., is similar to the two recently sold by the firm to Indonela.

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**CRAB CATCHER 'ARCTIC SEA'**

BUILDER: Marine Construction and Design Co.  
OWNERS: Kristian Poulsen, Erik Poulsen, Barry Ohai

length o.a. 122 ft (37.2 m)  
breadth 31.3 ft (9.5 m)  
depth 14.0 ft (4.3 m)  
gross tonnage 198 tons

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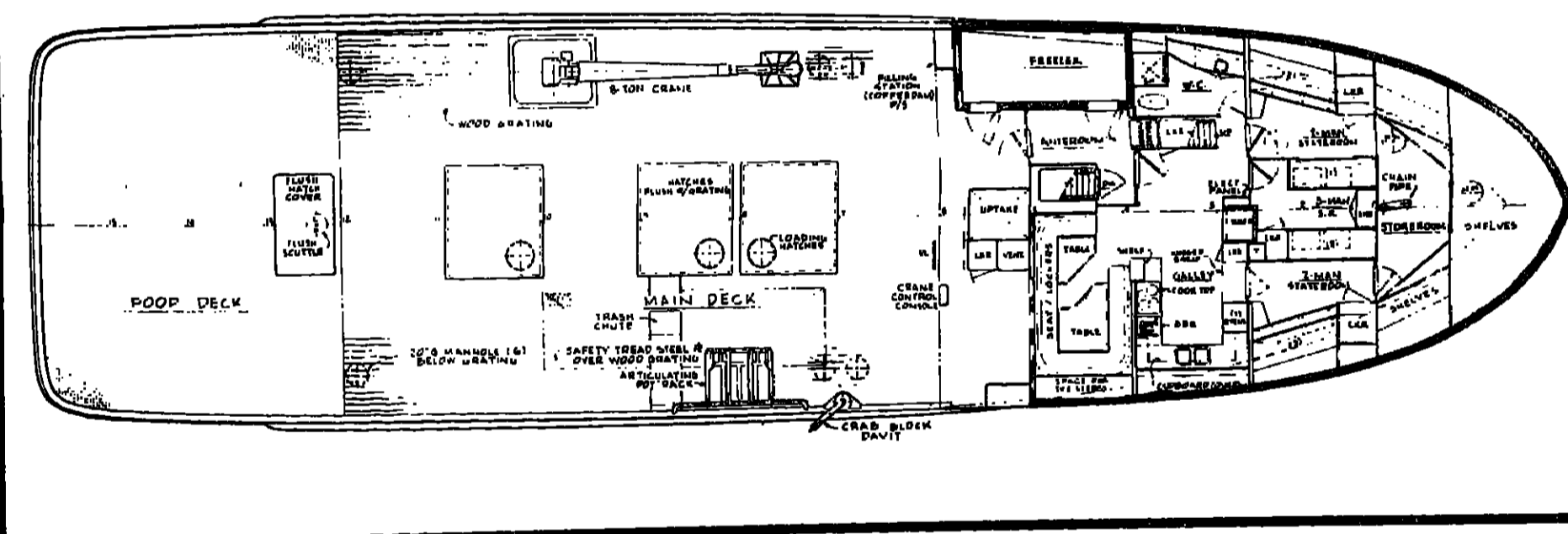
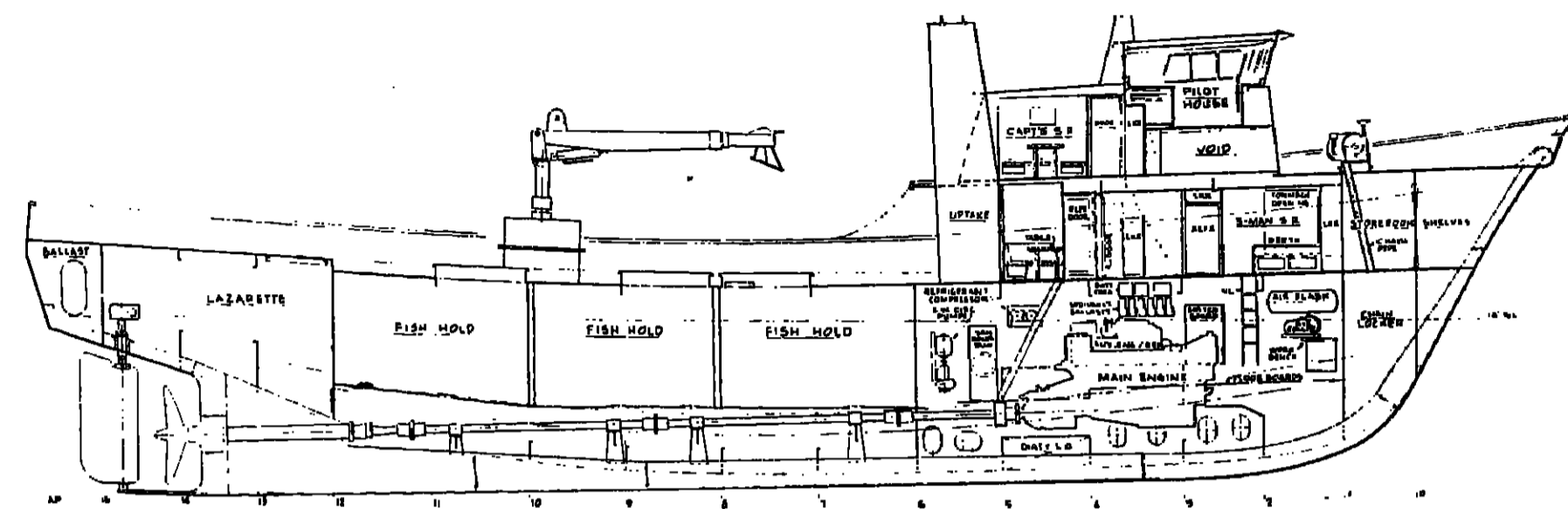
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# THE MARCO BIG ONE

## Profile and working deck plan



## NEW-STYLE ALASKA CRABBER IS 122ft LONG

THE 122 ft. combination crab boat *Arctic Sea* is the largest fishing vessel yet built by Marine Construction and Design Company (Marco) of Seattle.

She was completed in July and is being prepared to go fishing for king crab in the autumn.

The *Arctic Sea* is owned by Kristian E. Poulsen, Erik Poulsen and Barry B. Ohai who also operate another crab boat, the *Bering Sea*.

A new version of the 120 ft. combination crabber-trawler introduced by Marco three years ago, the *Arctic Sea* incorporates a number of innovations for a vessel of this type. Some of these reflect the experience of her owners on Alaskan fishing grounds.

For example, the *Arctic Sea* has fishing stations port and starboard. With the two stations, she is able to work more efficiently in Alaska coast tidal conditions because less manoeuvring is required to align the vessel picking up a particular string of crab pots.



On her overall length of 122 ft. (37.2 metres), the *Arctic Sea* has a beam of 31 ft. 4 in. and depth of 14 ft. Gross tonnage is 198.

Deck machinery for the two fishing stations includes two Marco Kinghaulers for crab pot handling, a Marco KingCoiler to coil the line from either hauler, and two Hansen double-acting crab pot hydraulic dumping racks.



The vessel is also equipped with a new type of Rowe 11-ton, 50 ft. outreach telescoping hydraulic crane with a high-speed telescoping mechanism for faster handling of crab pots. A Mathers pneumatic control for the crane replaces the former mechanical systems.

Propulsion is by a Caterpillar D399 turbo-charged and aftercooled diesel engine developing 1125 hp. This engine turns a Coolidge 90-in. diameter four-blade stainless steel propeller through a Caterpillar 1271 hydraulic reverse-reduction gear with a ratio of 5.1 to 1.

For auxiliary power, the *Arctic Sea* is the first Marco-built ship to use the larger Caterpillar 3306TA engine coupled to two 155 kW generators and two Marco DP26 HPD hydraulic pump drives. Earlier ships were equipped with diesels driving 95 or 135 kW generators.

The fuel system features a central filling station port and starboard at the forward end of the fo'c'sle overhang. Fuel oil is distributed to the tanks through the main valve manifold in the engine room, an arrangement that allows the ship to be fueled while fully loaded with crab pots. Three fish holds provide

9,500 cu. ft. (269 cu.m.) of space for 220,000 lb. of live crabs. The seawater circulation system changes water in the holds completely every 20 minutes to keep the catch alive until the vessel returns to the processing plant.



Another design change from previous Marco vessels of this type is the single box mast enclosing the exhaust pipes. A platform with guardrails is at the top of the mast for servicing the large crab lights and the radar scanner. A second radar scanner is mounted on the mast above the wheelhouse.

Deck grating has been extended to cover the entire poop deck to increase crew safety and to protect the steel deck during loading and unloading of crab pots.

The *Arctic Sea* follows the pattern of many Marco vessels in that she can be used for crabbing or for trawling. Although she is not pre-

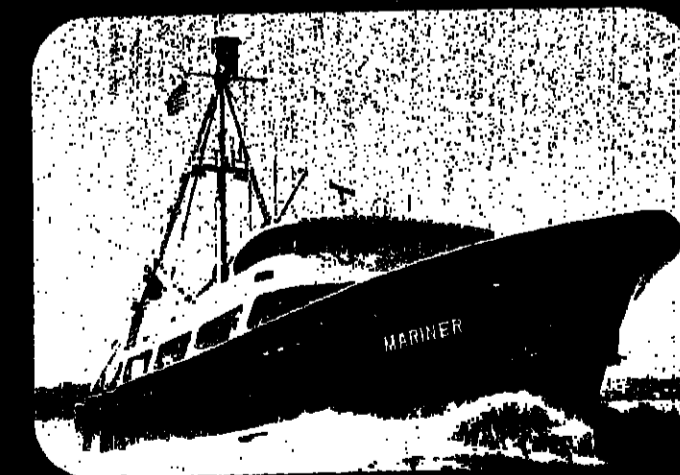
sently fitted out for trawling, she can be easily converted. Also, the new design of the wheelhouse will improve skipper-control of fishing. The house is stepped up a half-deck above the skipper's stateroom to give a 360 deg. view of the ship and her decks.

Galley and mess decks are reversed from the traditional Marco design. The mess now looks out on the afterdeck and has an array of sound and video equipment for the crew.

Wheelhouse electronic equipment includes two Konel-Furuno KRA 1064 64-mile radars, Furuno FUV echo sounder, Konel-Furuno FE 500 depth indicator, Raytheon Rayfax 1200 AHR fathometer receiver, two North Star 6000 Loran C receivers, and two Triton SSB radios. The ship also has a Sperry SR130 gyrocompass, RT autopilot and Wagner T-18 hydraulic steering with jog steering stations.

The *Arctic Sea* was followed at the end of August by a second 122 ft. sister ship. These are the sixth and tenth of a series of large crab vessels built by Marco since July 1976.

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## BOATS &amp; BUILDERS

## SCOTS FAMILY'S FOURTH

**Buchans return to Norway for latest £900,000 purser**



SKIPPER John Buchan of Peterhead, Scotland, is now in command of his new 111 ft. (33.84 metre) long purse seiner *Lunar Bow* (pictured left). The ship cost about £900,000 and was built in Norway by Sighjorn Iversen of Flekkefjord. The fourth purser to be built by the Iversen yard for the Buchan family, she replaces an earlier boat of the same name.

She has a transom stern, raked stem, bulbous bow and is fitted with a full length shelter deck. Construction is mainly of steel but the wheelhouse and RSW tank hatches are aluminium.

She has a carrying capacity for some 300 tons of fish in her six RSW tanks.

The vessel incorporates all the latest ideas in the layout and equipment of Scottish purse seiners. She can also work as a single or pair trawler.

Apart from the Bjørshol Triplex net winch, all hydraulically powered gear handling machinery is by Karmoy Mek. Verksted.

Rather than the more usual siting on the shelter deck, the 26-ton combination purse seine and trawl winch is housed in a more sheltered position on the main deck, on the port side forward of the tank hatch trunking. The winch has two drums for purse seining and two for trawling.

### How she measures

length o.a.	111.25 ft
length b.p.	92.00 ft
breadth	28.00 ft
depth	13.50 ft
RSW tank capacity	300 tons

gear handling machinery are driven from the forward end of the engine through a Hiflex single-input multi-output gearbox.

The model SP1105 105 hp bow thruster and SP0150 150 hp stern thruster are both by Brunvoll.

Two Lister JWS6 140 hp auxiliaries drive two Newage Stamford alternators.

Refrigeration plant is by Kvaerner of Norway and is designed to cool 80 tons of seawater from 15 deg. C down to 0 deg. C in four hours.

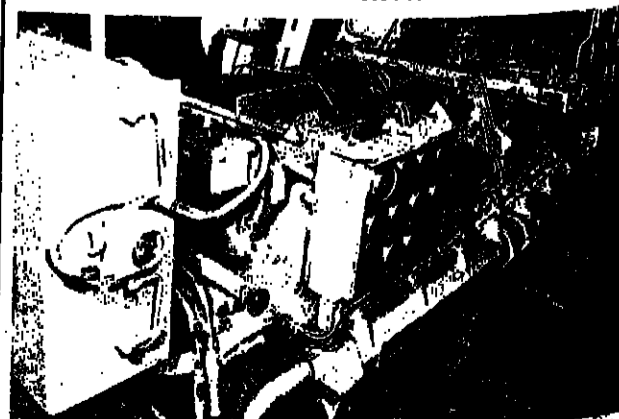
Fish finding instruments include the new Elac Min Loran sonar which is regarded as particularly suitable for mackerel.

### Fischlupe

Also carried is the new Elac LAZ 48 Panoramascop sector scanning sonar. Other Elac fish finders in the *Lunar Bow* are the LAZ72 echo sounder with LAZ62 Fischlupe, another LAZ72 for net sounding and LAZ45 netsounder scope.

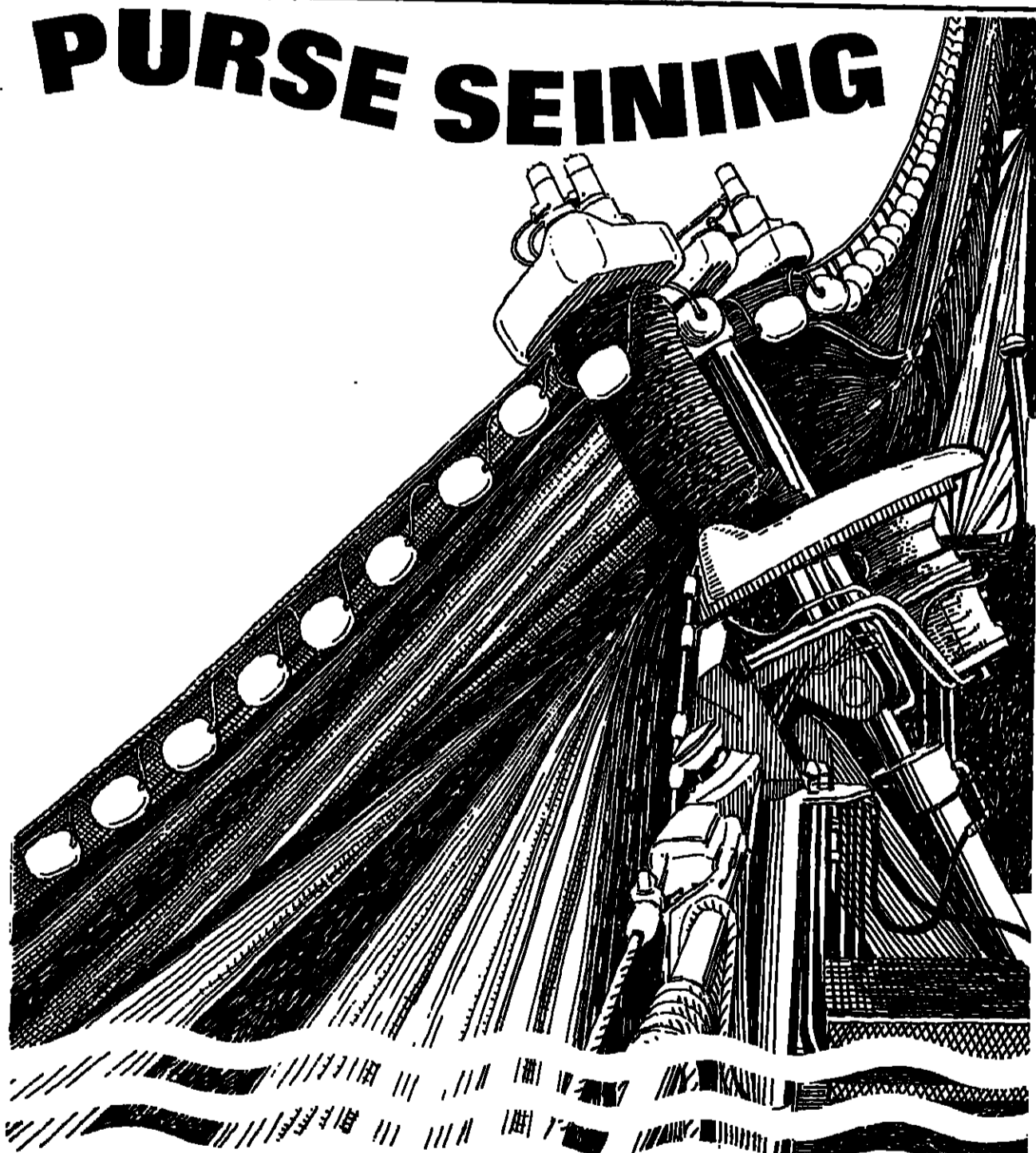
Other fittings in the well-equipped wheelhouse include C-Tech Omni Sonar, Kelvin Hughes radar, OKI ONX 7 48-mile radar, and Decca Mk 21 Navigator receiver.

The Tenford 130 ESO steering gear is coupled to a Robertson AP7 autopilot.



*Lunar Bow's* Caterpillar D399 engine. The vessel is the first in Scotland to be fitted with a Cat propulsion unit of more than 1,000 hp.

## PURSE SEINING



### WITH THE TRIPLEX NET WINCH

For TUNA, HERRING and MACKEREL

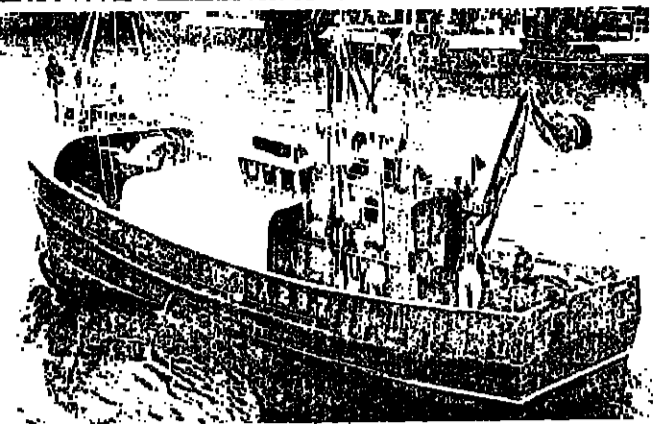
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The TRIPLEX hydraulically operated seine winch hauls with all three rollers simultaneously. 100% effective pull on the net and cork line. Wear on net reduced.

Roller fitted with replaceable rubber coated cylinders.

TRIPLEX NET WINCH delivered now in three sizes:  
Type 380/225 with theoretical net pull 1.5 and 3 tons.  
Type 504/300 with theoretical net pull 4 and 6.5 tons.  
Type 603/360 with theoretical net pull 15 tons.

## TWO DAYS TO FILL THE HOLD



A good start for the seiner Endeavour II

ONE of the latest additions to Scotland's seine net fleet is the 56 ft. (17 metre) long wooden-hulled *Endeavour II*, for Skipper Alex Forsyth in association with the Don Fishing Co. (Aberdeen) Ltd. Designed by the Napier Company (Arbroath), the boat is typical of the sturdy small seiner and bobbin trawlers from the Macduff Boat Building and Engineering Company.

Whaleback, deck shelter and hatch covers are of aluminium and the rest of the superstructure is steel.

Gear handling machinery includes Mastra hydraulic winch, Lössie power block and a Beccles rope coiler.

Seine ropes are carried in storage bins arranged at the

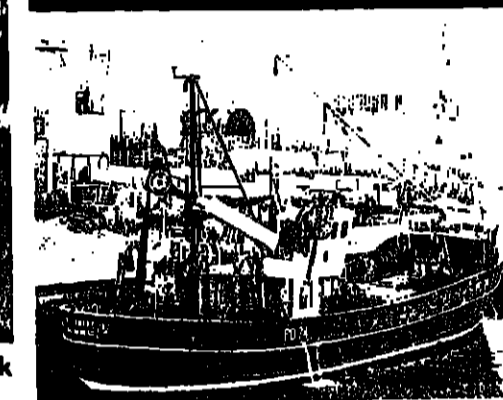
forward end of the fishroom. The fishroom has a capacity for 260 boxes, and in one of his first trips in the new boat Skipper Forsyth filled it in two days.

The Volvo Penta TAMD 120 A six-cylinder propulsion engine has a continuous rating of 300 hp at 1,800 rpm. It turns a Bruntons Caledonian fixed pitch propeller through a Twin

Disc 4.5 to 1 ratio gearbox. A takeoff shaft at its forward end transmits power to a Dowty variable delivery hydraulic pump driving the Mastra winch.

Fish finding equipment includes an Elac Echograph with bottom lock. The boat also carries Sallor radio telephones, Furuno FR524 radar and a Koden multi-stylus sounder.

## COOLER 'AMETHYST' COMES BACK HOME

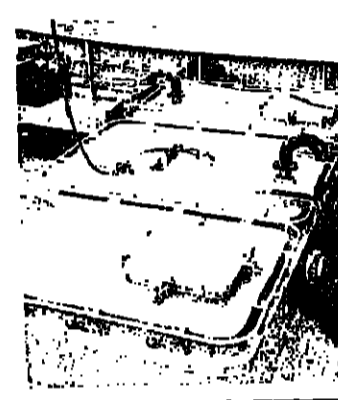


THE 85 ft. (25.9 metre) steel-hulled vessel *Amethyst* (left) returned to her home port of Peterhead, Scotland, recently, after having refrigerated sea water tanks fitted in Norway by Haakonson Mek. Verksted, Skudenshavn.

The Haakonson yard is a member of the West Norway Shipbuilders' Association and it did the installation in seven weeks.

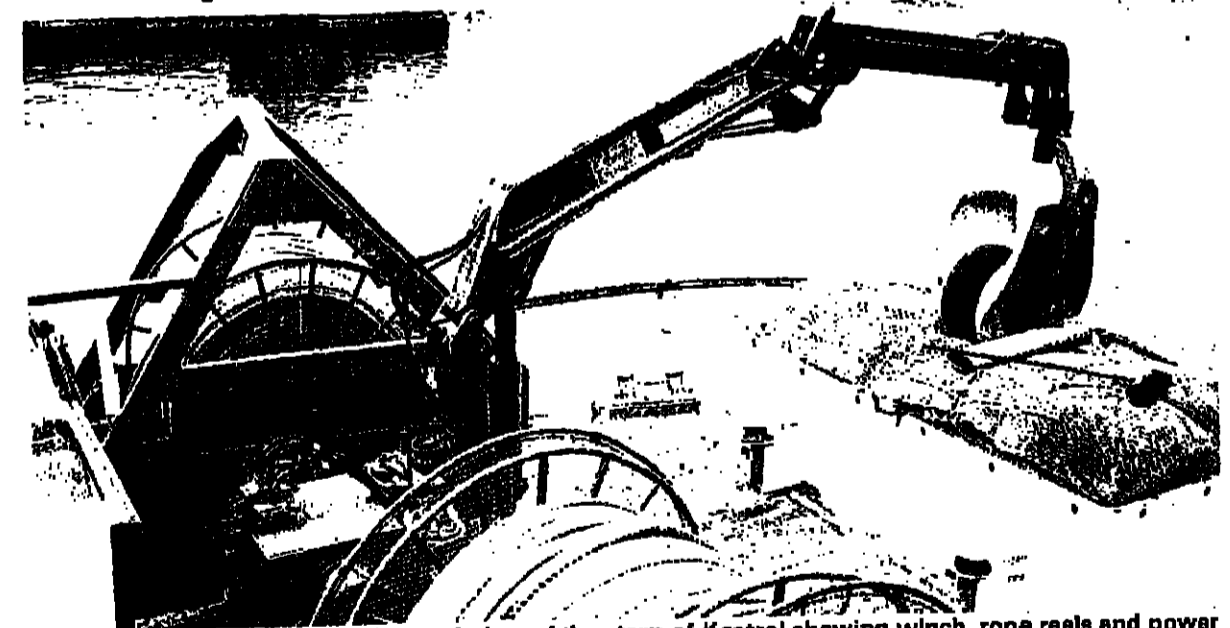
Included in this are three steel tanks able to hold 80 tons of fish in cooled seawater, a Lehmkühl refrigeration plant, a York Shipley Freon compressor, and a Lister 80 hp auxiliary.

The three aluminium hatch covers to the RSW tanks are shown right.



## Power and Efficiency from Lossie Hydraulics

Skipper Ian Sutherland comes back to Lossie Hydraulic for a second time for his new KESTREL



A view of the stern of Kestrel showing winch, rope reels and power block. The structure over the starboard rope reel would be used to carry a towing block should the vessel switch to white fish pair trawling.

POWER BLOCKS - (UP TO 36" DIA. SHEAVES)  
MULTI-SHEAVE NET HAULERS - (15" DIA. SHEAVE)  
GILL NET HAULERS - (17" DIA. SHEAVE)  
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GILSON WINCHES - 6 TONS LIFTING CAPACITY

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SERVICE DEPOT, PETERHEAD. TEL: 034-361 469



## Ever thought of tiny Iceland as a big market?

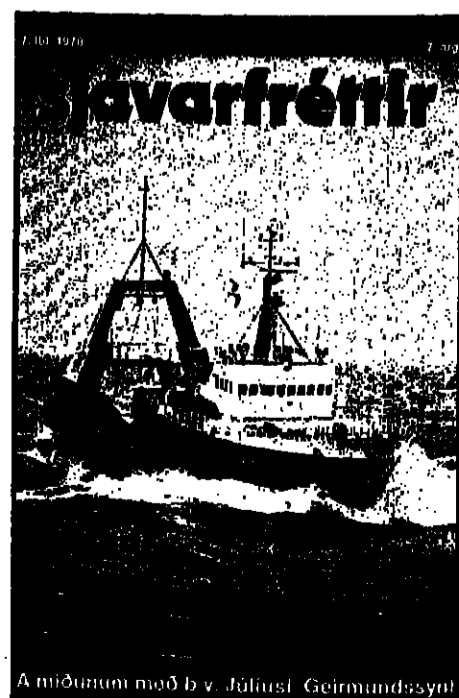
Some do but most don't. And they're wrong. When it comes to fishing and fish processing the Icelandic market is big. Bigger than some people think.

Last year Iceland invested \$75 million in fishing and processing, and most of the equipment came from abroad. So couldn't the Icelandic market be more important to you than you thought? Or what was your share of those \$75 millions?

The Icelandic market for fishing equipment is too big to be ignored. So why not start your marketing effort now. Advertising in *Sjávarfréttir*, the biggest fishing magazine in Iceland, could be of great help to you. Give it a try!

For further information write to *Sjávarfréttir*, Box 1193, Armúll 18, 105 Reykjavík, Iceland.

If Iceland is your target *Sjávarfréttir* can help.



A midnámur með b. v. Júlíust. Geirmundsson

# THE BRITISH GO BACK!

THE BRITISH will be going back to Iceland next month.

But not in trawlers. And not for fish. In an enterprising project, organised by the British Marine Equipment Council and supported by the British Overseas Trade Board, 19 companies, whose activities range from boatbuilding to publishing, will be taking part in a seminar and mini-exhibition in the Hotel Loftleider, Reykjavík.

These will take place on Tuesday and Wednesday, October 3 and 4. They have been prepared over several months by the Fishing Division of the BMEC, and this work has involved a visit to Iceland by BMEC secretary Michael Morris and a visit to the UK, to address a meeting of the Division, by Mar Elisson, director of the Icelandic Fisheries Association.

The participants are under no illusion that the British way back into the Icelandic market will be easy. Memories of the bitter fish war between the two countries are still

## ...to sell equipment

too recent. But Icelandic vessels have begun to land their catches at some UK ports where they have taken record earnings from markets short of cod and related fish.

The industry in Iceland has long obtained equipment from the United Kingdom. The object of the exercise in Reykjavík in October is to give fishermen and others an opportunity of hearing about new technology and of seeing and discussing new equipment. Standard-size displays will be grouped in the hotel close to the conference hall.

The seminars will be opened on the

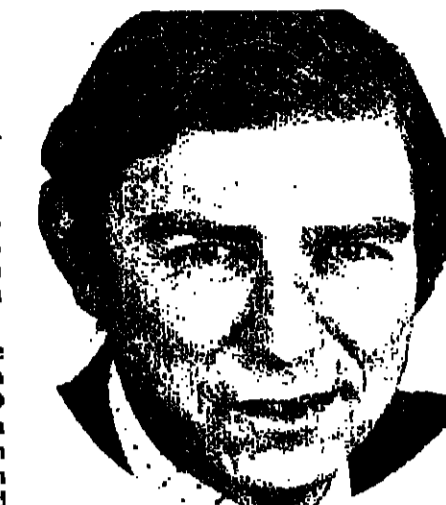
Tuesday morning by W. N. Robinson, chairman of the BMEC Fishing Division.

In the first session, Stone Manganese Marine will give a paper on how thrust units and Lister Marine one on the installation of diesel engines in fishing craft.

In the afternoon, CompAir Industrial will discuss fishing, compressed air and its applications; F. Bamford & Co. will deal with advantages of controllable pitch propellers in fishing and Kort Propulsion will present a case for Kort nozzles.

Sessions the following day will include papers by Hall Thermotank on refrigeration products and their application, by RPD Inflatables on life rafts, by Pains-Wessex on marine pyrotechnics, by Dunlop on inflatable boats, APV Parafreeze on fundamentals of freezing and thawing, and Kelvin Hughes on radar as a fishing aid.

The seminar and exhibition will be open to interested people in the fishing industry all over Iceland.



Seminar and mini-exhibition organiser Michael Morris of BMEC. Preparations included a visit to Iceland.

## How forums help the manufacturer

DESCRIBING the development of the type of "fishing forum" which it will be presenting in Reykjavík, the BMEC said that British equipment makers were quick to realise that changes taking place in the fishing industry would put special demands on them.

In addition to their traditional technical skills, they have also had to develop in such areas as marketing, finance and commercial practice.

By grouping together to set up a Fishing Division in the BMEC, they have harnessed their forces and put themselves in a position from which they can make a substantial contribution to the efficiency, output and achievement of fishery industries all over the world.

The Division now has 54 members and is still growing. High in its priorities, and particularly relevant in today's business climate, is its ability to offer equipment packages or series purchases through bulk credit facilities.

### Flexible

This, explains BMEC, is a flexible service which can be used for an entire ship's equipment or for a smaller specialised package of fewer items.

It is also a comprehensive service which can include consultancy advice on fleet development; financial, credit and contractual arrangements; and operational and service recommendations.

Communication becomes a particularly vital factor in times of change and a productive interchange of information between supplier and user is essential in these circumstances.

The producer must be fully aware of just what the

user currently requires of his equipment in terms of performance, costs, delivery and service.

And it is equally important that the user is up-to-date on the latest technical developments and marketing techniques which can help him achieve optimum working efficiency.

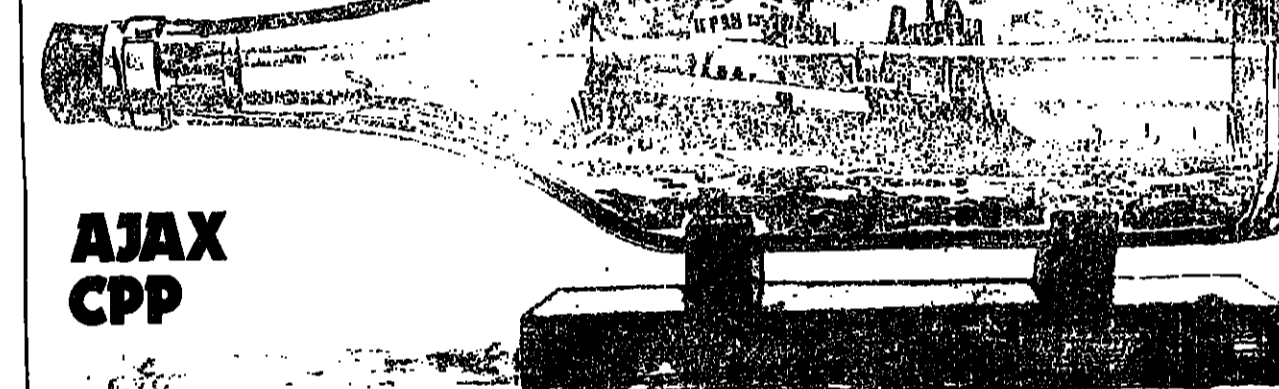
### Interchange

This kind of interchange is what the BMEC Fishing Division Forums are all about. These exercises, comprising a mini-exhibition and technical conference spread over two or three days, are aimed at fostering a working collaboration.

Upwards of 15-20 British manufacturers generally participate, and the Forum is set up in a selected overseas market where a need has been identified.

British government sponsorship, through the British Overseas Trade Board, makes this highly cost-effective for the supplier. And the user appreciates the first-hand contact with a number of suppliers at one go, as well as the opportunity to discuss broader industry questions and his own requirements through the conference, and with the Fishing Division.

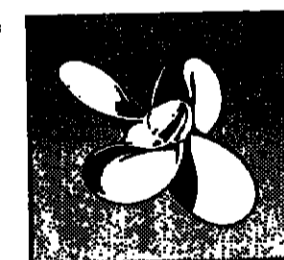
## The one that gets you out of tight spots



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Tel: 061-480 6507-8 Telex 668518

## A new family of stern trawlers from Campbeltown

Following the success of its seiner/pair trawlers — the choice of top skippers in Scotland and Ireland — Campbeltown Shipyard has introduced a new 'family' of steel stern trawlers incorporating many new design features.

Four of these 87-foot vessels have been ordered by Faroese fishing partnerships. Van is now well proven in service, Fram has recently been completed and two more are under construction.



**CAMPBELTOWN SHIPYARD LTD.**

Trench Point, Campbeltown, Argyll. Telephone: 0586 2881/2 Telex: 779478

**THE FIRMS TAKING PART: TURN TO PAGE 38**

**BMEC  
Forum  
in  
Iceland**

**WE'LL  
BE  
THERE!**

WITH ITS associate publications, the British weekly *Fishing News* and the quarterly *Fish Farming International*, FNI will be on display at the BMEC mini-exhibition.

We shall be represented in Reykjavik by FNI assistant editor David Glen and by assistant advertisement manager Michael Purves.



Built for the Faroe Islands, the 26.5 metre stern trawler *Von* is one of four ordered from the Campbeltown yard in Scotland.

## Is your propeller working for you? Or against you?

If you run a small workboat, like a tug or trawler under 1200 bhp, chances are you're running around with the wrong propeller.

And that costs money.

We make a wide range of propellers for all kinds of craft. But our special strength lies in the design of multi-pitch propulsion systems for the smaller type of workboat.

They give you the fuel economy of fully controllable pitch propellers at two thirds the price. And they're absolutely maintenance-free.

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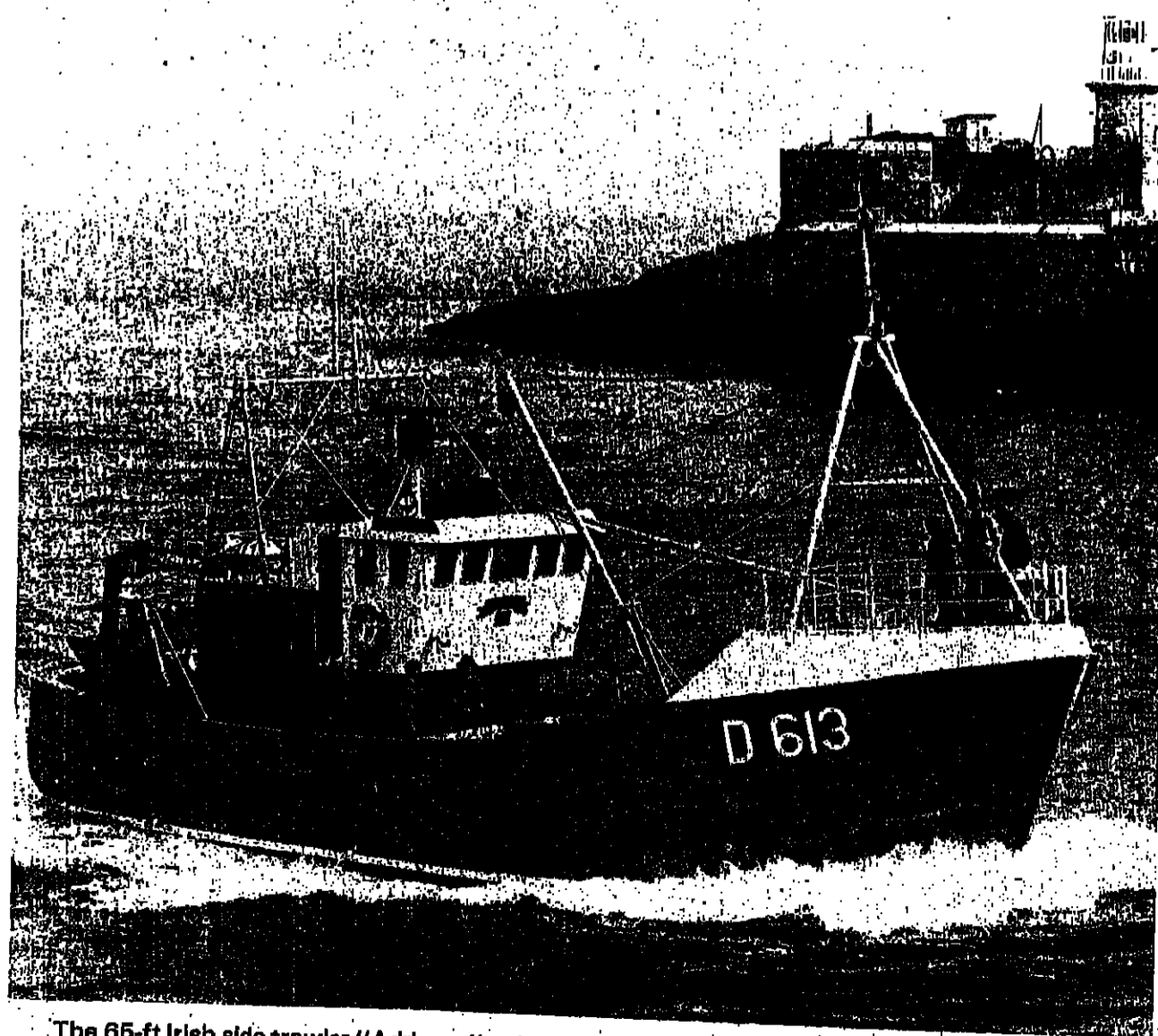
We can supply our multi-pitch propellers with a mechanical adjuster to suit your existing equipment. Or with a special inside hydraulic actuator to allow you to change pitch from the bridge.

They're designed on simple engineering principles and are very easy to assemble and install. They're also totally fail-safe.

Our propulsion system brochure will tell you more.

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OL2 7UX, England. Tel (070 881 47632  
Telex 63371



The 66-ft Irish side trawler "Adrienne" — launched April, 1978 — is equipped with a Newage H2P/1 two-pitch propeller, driven by a 415 bhp Kelvin TASC8 engine through a factory-modified Reintjes reverse reduction gearbox with 4:1 reduction ratio. Average fuel consumption is around 8.5 gallons an hour — and Skipper/Owner Gerry Moore estimates his fuel costs are more than 30 per cent lower than similar vessels with fixed-pitch propellers.

# The products that will be on show

FIRMS TAKING part in the mini-exhibition being organised by the British Marine Equipment Council in the Hotel Loftleider in Reykjavik on October 3 and 4 include a shipbuilder, suppliers of refrigeration plant, engine and propeller manufacturers, makers of rubber boats and life rafts, and two publishers of fishery journals.

Campbeltown Shipyard of Scotland is to highlight its compact stern trawlers, the first of which are proving successful fishing in Faroese waters.

It will feature its 87 ft (26.52 metre) long vessel, similar to one ordered by Faroese partnerships, and a larger vessel of 105 ft. Campbeltown's yard at French Point in Argyll has completed two of the Faroese boats — the *Von* and the *Fram* — and the other two are under construction.

Introduction of these stern trawlers follows the building of 27 seiner pair trawlers for UK owners, based on standard hulls of 75, 80 and 85 ft.

### Working model

On its stand, F. Bamford & Co. Ltd., will exhibit a hand-operated perspex working model of its Ajax controllable pitch propeller hub together with graphics showing applications. It will also show a cut-away model of its range of Ajax fluid alarm equipment.

Among fish handling gear, James Robertson will feature its range of winches for trawlers and other fishing vessels.

A newer company in this field is Colts Engineering which has established itself over the past two years as a supplier of deck machinery. Its products include twin-drum trawl winches from 0.75 to six tons mid-layer pull.

Products to be presented on the stand of the Marine Propulsion Division of Newage Engineers will include its H2P hydraulically-actuated two-pitch propeller system, which was described in FNI in May.

Installed in the Irish boat *Adrienne*, this can be controlled from a simple switch panel in the wheelhouse. It gives the skipper two pre-set blade pitches matched to the characteristics of his boat.

### Fishermen keen

Kort Propulsion Ltd., will be giving a paper at the seminar as well as presenting its ducted propeller systems in the mini-exhibition.

According to Kort Propulsion, owners of fishing craft from 10 metres long upwards seem keen to take advantage of the increased thrust provided by a nozzle system.

"The number of orders and enquiries over the past year for new and existing vessels," adds Kort, "confirm this fact, despite uncertainty in the industry."

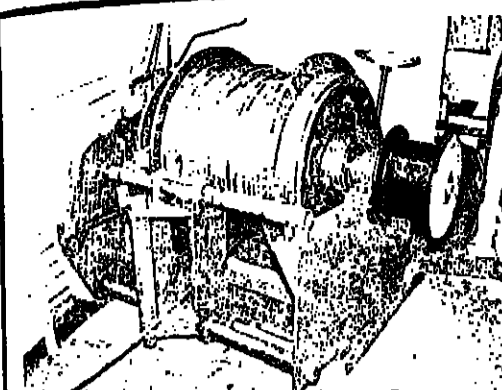
Dunlop will be featuring its inflatable boats and life rafts in the mini-exhibition and Ron Noud, services manager for Dunlop Marine Safety Products, will be giving a paper on the boats during the seminar.

Other exhibitors include: Hamworthy Pumps, APV Parafreeze, Hall Thermotank Refrigeration, Stone Manganese propellers, CompAir, Kelvin Hughes radar, echo sounders and radio telephones, Pains Wessex marine pyrotechnics and RFD inflatable life rafts.

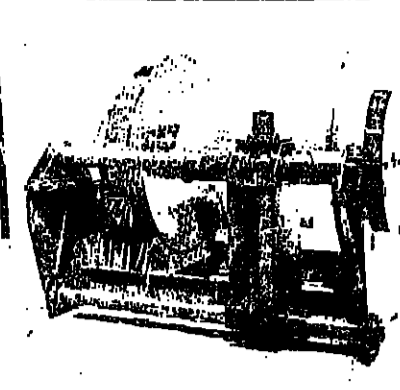
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**WACO** Fish-Washing Machine

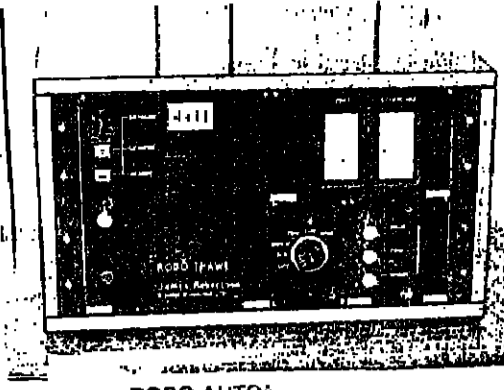
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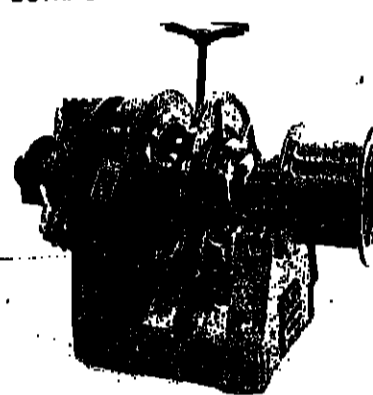
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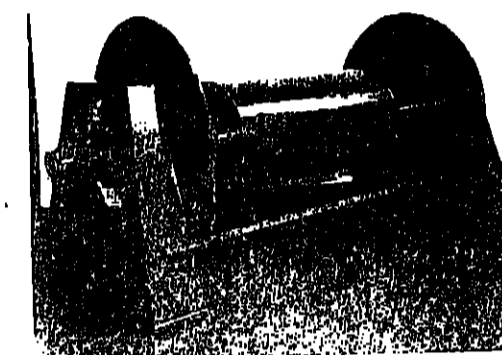
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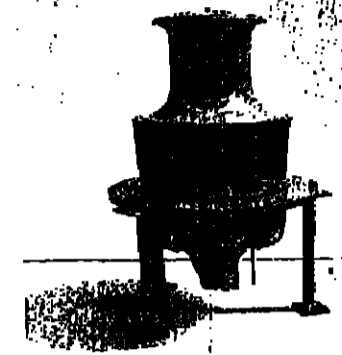
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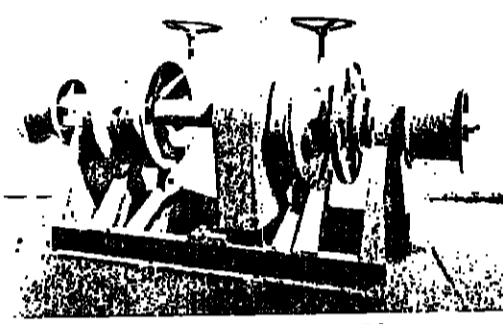
SINGLE WINDLASS



NET DRUM



15 TONS GILSON WINCH



DOUBLE WINDLASS

## Iceland sees British Suppliers' capability

At a special Forum presentation in Reykjavik, British suppliers are showing what they have to offer the commercial fishing industry in Iceland.

The presentation particularly emphasises the streamlined industry service which is now available from British suppliers. This has been possible since the major manufacturers combined to set up a Fishing Division of the British Marine Equipment Council (BMEC), sponsors and organisers of the Reykjavik presentation. In practical terms this means that users of British fishing equipment now have:

- ★ a single contact point for reaching British equipment manufacturers
- ★ a source of company and product information
- ★ a means of obtaining effective cost comparisons and product evaluation
- ★ a co-ordinator and contractor for the purchase of complete packages of equipment
- ★ a consultant on fishing fleet development and equipment application

The services of BMEC's Fishing Division are quite free, worldwide, to all those involved in the specification, purchase and use of equipment and services in the commercial fishing field. They can be applied as effectively for a single vessel as for a complete fishing fleet.

Products and services of the following companies are directly represented:

**APV-Parafreeze**  
**F. Bamford & Co.**  
**Campbeltown Shipyard**  
**Colts Engineering**  
**CompAir Industrial**  
**Dunlop-GRG Div.**  
**Fishing News International**  
**Hall-Thermotank Products**  
**Hamworthy Engineering**  
**Kelvin Hughes**

**The Kort Propulsion Co.**  
**R. A. Lister Marine**  
**Newage Engineering**  
**Newark Ferguson**  
**Pains-Wessex**  
**RFD Inflatables**  
**James Robertson & Sons**  
**Stone Manganese Marine**  
**World Fishing**

The Forum is being held from 0930 to 1700 daily at the HOTEL LOFTLEIDER, Reykjavik, on October 3rd & 4th, 1978. Technical conference sessions, held concurrently, include papers on propulsion and ship positioning, diesel engines, the uses of compressed air, refrigeration, freezing and thawing, life rafts, radar and pyrotechnics. The Forum will also be open to the general public from 1930 to 2130 on Wednesday, 4th October.

## British fishing equipment and services

The following companies are all Members of BMEC's Fishing Division:

### CONSULTING — TECHNICAL AND FINANCIAL

A & P. Appledore (London)  
ASMTM — Marine Division  
British Overseas Engineering and Credit Co.  
Essex  
The Napier Co. (Ayrshire)  
White Fish Authority  
YARD

### DECK & GALLEY EQUIPMENT

Colts Engineering  
Kempala  
James Robertson & Sons (Fleetwood)

### FISH C

Ansell, Jones & Co. Ltd.

### FISHING ELECTRONICS & NAVIGATION AIDS

Aeronautical & General Instruments  
S. G. Brown  
Henry Brown & Son  
Ceres  
Chambers Instruments  
The Decca Navigator Co.

### REFRIGERATION AND PROCESSING MACHINERY

APV-Parafreeze  
Anderson Engineering (Kilish)  
Hall-Thermotank International  
Hall-Thermotank Products

### SPECIAL SERVICES

Cathodic & Electrolytic Engineers  
Fisheries Organisation Society  
Hoovermarine Transport

### STEERING GEAR AND STEERING GEAR

F. Bamford & Co.  
Deep Sea Sales  
Kort Propulsion Co.  
Newage Engineers  
Newark Ferguson  
Stone Manganese Marine  
S. M. Wile

### INTERNATIONAL JOURNALS

Fishing News International  
World Fishing

For details on Membership of BMEC's Fishing Division and its services to users, contact BMEC's information bureau at Reykjavik Forum or write to:

**British Marine Equipment Council**  
111/112 Whitechapel  
High Street,  
London E1 7PT,  
England

Tel: 01 247 7566  
Telex: 836883

Contact: Fishing Division Secretary

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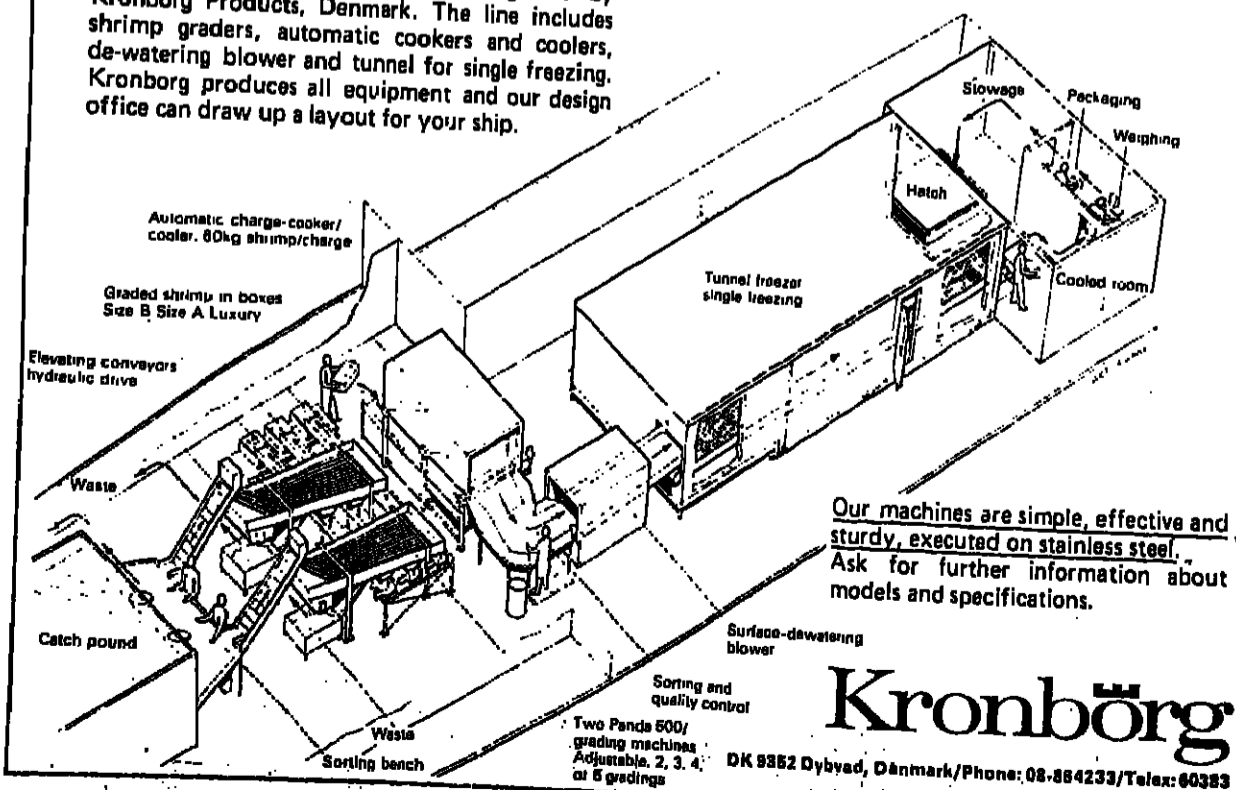
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## PORTS & MARKETS

# TOP DOG PORT

### British merchants cash in on a once-scorned fish through exports...

CATCHING, processing and marketing of dogfish (Squalidae) has become big business in the English trawler port of Grimsby. It has developed into a non-stop year round operation which has made the Humber port the top centre for this species in Britain and probably in Europe.

Despite its size and increasing prominence, the Grimsby dogfish industry is shrouded in mystery, but then fishing has always been a secretive business. For generations skippers have guarded their favourite grounds and merchants their markets.

At Grimsby a small group of merchants specialising in dogfish has gained a reputation for quality.

Their businesses have been built up (particularly the export trade for skinned dogs and flaps) by hard work and through personal contacts.

One dogfish specialist in Grimsby is A. R. Jenner (F.M.) Ltd., easily identified by the brand name "Jendog". The firm was founded in 1933 by Arthur R. Jenner and is now run by his son, David. These days more than 75



**THE DOG SKINNERS:** The head of each fish is hooked to a board then the skin torn backwards to the tail. This needs a strong arm.

per cent of all production is dogfish. "We can handle 14,000 lb (6.25 tons) a day without sweating and 21,000 lb with ease in winter," says Dave Jenner.

Most of the export orders come in by telex. Orders are rapidly processed from fresh fish, packaged and sent off

often only hours after receipt.

The firm processes headless, skinned dogfish largely for France and Belgium. By using contracted refrigerated transport and Sealink ferries, fish from Grimsby is on the European Continent just 16 hours later.

Jenner also produces large quantities of dog flaps. But these are passed on to a flap specialist for export. The best outlet is West Germany.

### Freshness

Quick processing, handling and despatch all contribute to securing and holding business, but the most vital factor is probably the freshness of supplies of dogs to the factory.

"I buy fish which are rarely more than a day old to maintain a top quality product," says Mr. Jenner. "Once you have this and the markets, the brand name sells itself."

The firm, like others in the trade, buys at least half its supplies from outside Grimsby depending on the time of the year. Fish is brought in overland from all over Britain. Regular consignments come in by road from Scarborough, Fraserburgh, Whitby, North Shields, Buckie - to mention only some of the sources.

From October onwards, after the coastal season has closed and the good trawl-caught westerly dogs are

beginning to taper off, Jenner calls heavily on supplies from the west coast of Scotland.

Ungraded fish are usually graded into three groups: small (1.5 to 2 lb), medium (2.5 to 4 lb), and large (4 lb up). The dogfish skinner is a skilled worker who combines a keen eye with a sharp knife and no mean physical strength to cut a whole range of products with the minimum of waste.

The process is well standardised throughout the trade. Skin, head and guts are sold to Grimsby Fish Meal Company. So too are the livers, from which oil is extracted. The tails are also saved and are exported to Norway where they are dried and a nutritional fibre extracted.

What happens to these tail fibres is yet another puzzle of the trade. It could be a Chinese one too, for some people believe they end up eventually in the Far East as an ingredient in shark fin soup.

### Top sellers

All this leaves the two most saleable items on which the Grimsby dogfish industry is mainly based - the skinned carcass and the flaps.

Dog flaps come from the underside of the fish. They are rich, fleshy rectangles of high-protein meat which extend from the nape to the lower

abdomen. They line the belly and undersides and in a good fish - usually the bilches (females) which run larger than the jacks (males) - the flaps are often around half-an-inch thick.

"huss" and chips is almost certain to be dogfish. In other southern outposts skinned dogs have been known to pass as the ubiquitous "rock salmon" and even as substitutes for jellied eels! In the raw state, it may not be everyone's ideal of an eating fish, but that tender meat surrounding a jelly-like bone makes up into a very tasty dish.

Jenner's Jendogs are graded into small, medium and large when skinned (0.75-1.25 lb, 1.5-2.25 lb and up to 7 lb). The Grimsby firm supplies catering packs of 1, 2, 3 and 4 stone boxes (a stone is 14 lb) for UK markets. For export, there is a 30-kilo pack.

The expansion of the export side has transformed the British dogfish industry over the past ten years.

Even in the days before the export side grew into such a good business, there was always a big market for skinned dogs in the south of England and Jenner's always had a good share of this.

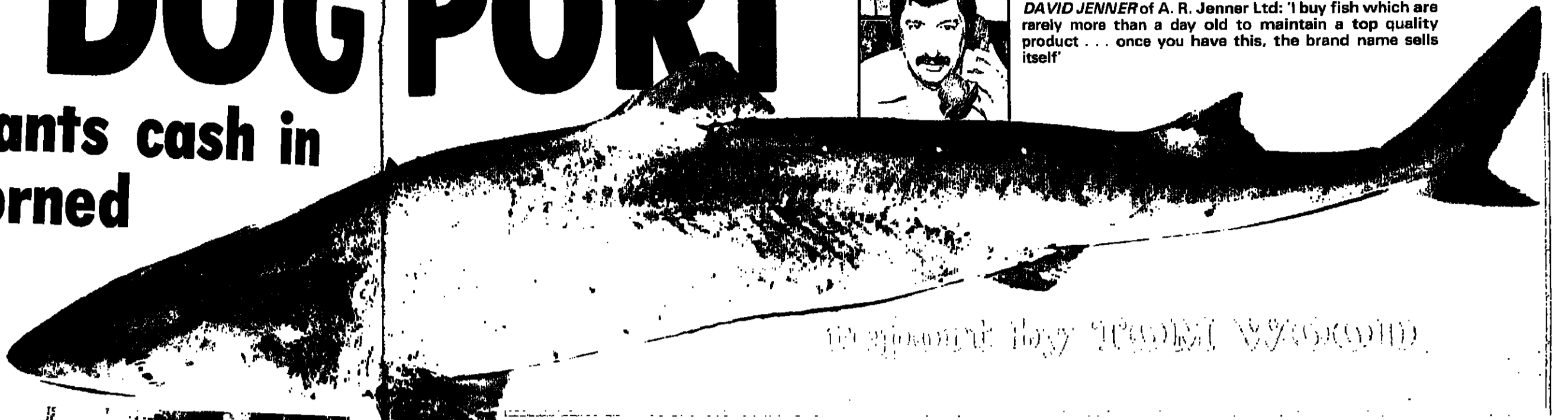
Oddly by one of those strange British customs which dictates what people eat according to where they live, the rest of Britain shuns dogfish. The UK trade has always therefore concentrated on the Home Counties around London and the south coast.

At popular southern seaside resorts such as Margate and Clacton, the delicious meal of



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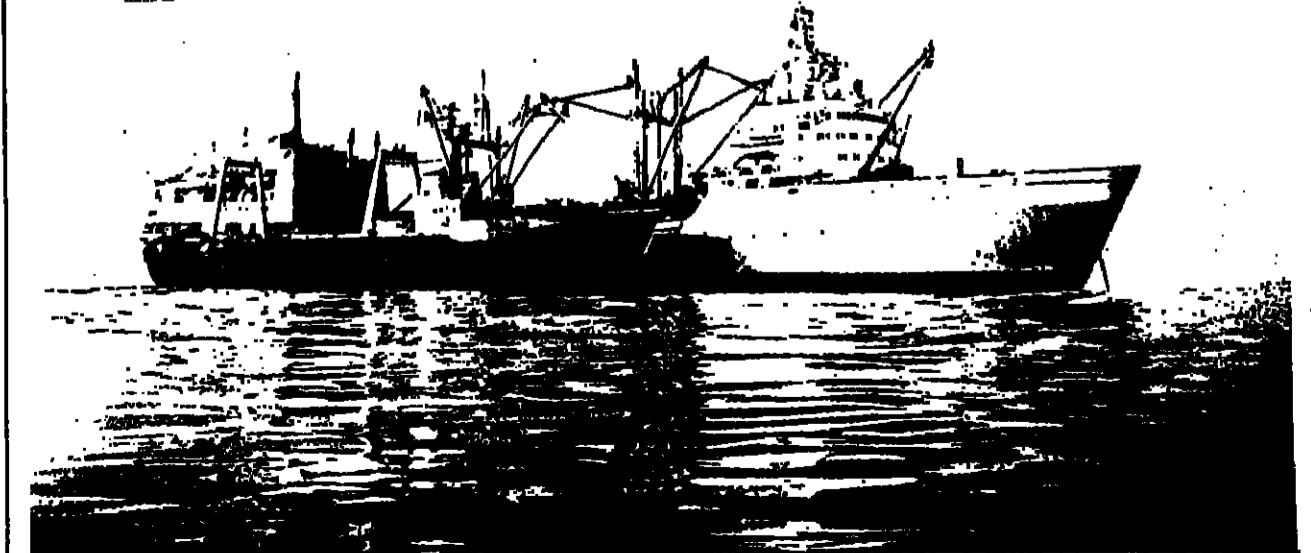
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AUSTRALIAN MARKET MISSION TO JAPAN — turn to page 46

## PORTS & MARKETS

### Duty on subsidies

JUST AFTER waiving countervailing duties on \$200 million worth of imported Canadian fish, the United States Treasury Department began an investigation into whether duties should be imposed on \$83.7 m. of Canadian groundfish, scallops and lobsters imported every year.

As it did in two previous cases last year, the Department ruled tentatively that Canadian fishing industry support programmes constituted export bounties or grants under US regulations.

If an investigation confirms this, countervailing duties up to the value of the subsidy might be considered.

In the previous cases, duties were waived until next January in return for Canadian promises to reduce or eliminate most support programmes. The latest investigation centres on programmes operated by the Canadian federal government as well as those of the Maritime Provinces and Newfoundland.

# AUSTRALIA PROBES JAPAN SEAFOOD MARKET

JAPAN IS a country of sophisticated consumer tastes and a wide range of high quality seafoods, according to a 19-member Australian Fishing Industry Mission that toured there for ten days in July.

A main objective of the mission was to assess the short and medium-term markets for imported fish and fish products and Australia's capacity to supply that market.

The team examined the Japanese importing and distribution systems so that an effective marketing strategy for Australian fish and fish products can be designed; and it studied technological developments in the Japanese fishing industry.

At the end of the tour, mission leader, F. A. L. Connell, who is general manager of the Geraldton Fishermen's Co-operative Ltd., in Western Australia, said that if more Australian seafoods were to be sold at premium prices in Japan, then maximum attention must be given to handling, quality and presentation.

#### Few items

Australia supplies only three per cent of Japan's seafood imports and these are limited to a few specialty items such as prawns, abalone, and rock lobster.

Some Australian tuna is reaching the Japanese market and there appears to be good prospects for increasing this.

Trial shipments of sashimi class southern bluefin tuna had been sent to Japan last year and it is hoped that the trade could become a commercial proposition.

So far as Australian luxury seafoods are concerned, any additional quantities for export will depend on marketing expertise, and to some extent on packaging for the retail market rather than wholesalers.

#### Farming

The Mission found that the Japanese government and fishing industry were making substantial efforts in aquaculture to reduce their dependence on imports and to

**Mission ends 10-day tour with hopes for bigger exports**

make up for possible shortfalls resulting from loss of access to foreign 200-mile fishing zones.

It appeared that most of the emphasis in aquaculture was on rearing fish and crustaceans in coastal waters, particularly in the Japanese Inland Sea.

Referring to technological developments in the industry, Mr. Connell said members had visited a range of factories manufacturing diesel engines for fishing vessels, electronic fish finding equipments and nets as well as ship yards.

The Mission was impressed by the high technical standards maintained and many members are returning to Australia with new ideas for the Australian fleet.

## Cut port charges to save fleets

OWNERS from England's three main trawler ports — Hull, Grimsby and Fleetwood — met in Edinburgh last month to formulate a joint approach to the government for assistance.

They are expected to request that payments for dock modernisation schemes in the ports should be written off as part of a plan to keep vessels fishing.

All three ports have been hit by drastic cuts in the size of their fleets. In Hull, for example, only two of the port's side trawlers were at sea early in August. Among the ships laid up is the *Somerset Maugham*, famous as one of the most consistent top performers in the better days of the distant water fleet.

At Grimsby, British United Trawlers has taken three more of its K-class side trawlers out of service, leaving it with a fleet of just 14 wet fish ships.

When the ports were modernised, 60 per cent of the cost came from government funds while the other 40 per cent was to be met by increased landing charges.

Now the industry hopes these will be reconsidered in order to keep the ports working.

The owners argue that they need to keep port facilities and labour together so that when the EEC finally agrees on a new Common Fisheries Policy, and they decide on fleet restructuring, the back-up will be there.

### Wholesalers criticised

THERE is need for a law in Spain to reorganise commercial distribution of fish and break-up the present oligarchy of wholesalers. This was the conclusion of the Spanish Senate following a recent debate.

It was noted during the debate that a typical wholesaler was more interested in selling one truck load of lobsters, or other

high-priced shellfish, rather than, say, 40 loads of sardines.

Pointing to this and other problems, Senator Fernandez Calvino urged that efficient state control be introduced to curb bad marketing practices.

Seconding him, Senator Jimenez Navarro said he supported an investigation and the preparation of a white paper on the subject.

## Calcutta fishing complex planned

A Rs41.6 million (£2.7 million) deepsea fishing complex is to be set up in West Bengal by India's central and state governments and the Calcutta Port Trust.

The central government and the Port Trust will be responsible for building the harbour at a cost of Rs13.8 m. at Roychowk, 30 miles south of Calcutta port on the River Hooghly.

West Bengal Fisheries Corporation will provide the shore complex.

According to K.C. De, general manager of the Corporation, the complex will substantially boost the state's deepsea programme launched with the acquisition of three small trawlers from Mexico in October 1977. A fourth trawler was obtained from Mexico in March this year.

Mr. De said recently that the "early teething troubles" of the trawlers were over.

The biggest problem faced by the Corporation was that of finding trained crews.

### KARACHI STUDY


THE government of Sind province in Pakistan is spending Rs450,000 (£25,000) on a feasibility study for the expansion and improvement of Karachi fishing harbour.

Investigating the harbour, a sub-committee of the Fisheries Board has suggested that it and the market should be run by a private corporation.

This should handle fish supply, administer and maintain shore facilities, control fish handling, and run fish auctions.

### Export drop

SMALLER catches of shrimp and other valuable species led to a fall in Pakistan's seafood exports. The total for 1977-78 was 13,308 tons worth US\$34.2 million, compared with 14,298 tons and \$38.5 million in 1976-77.



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For visitors and exhibitors alike, the Bella Center in Copenhagen will be the centre of the world fishing and marine industry in June, 1980.

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The World Fishing Exhibition covers the whole spectrum of the commercial fishing industry: ships and equipment for the finding, catching, and processing of fish at sea as well as every aspect of the land-based industry including processing, packaging and marketing. It will also include marine products.

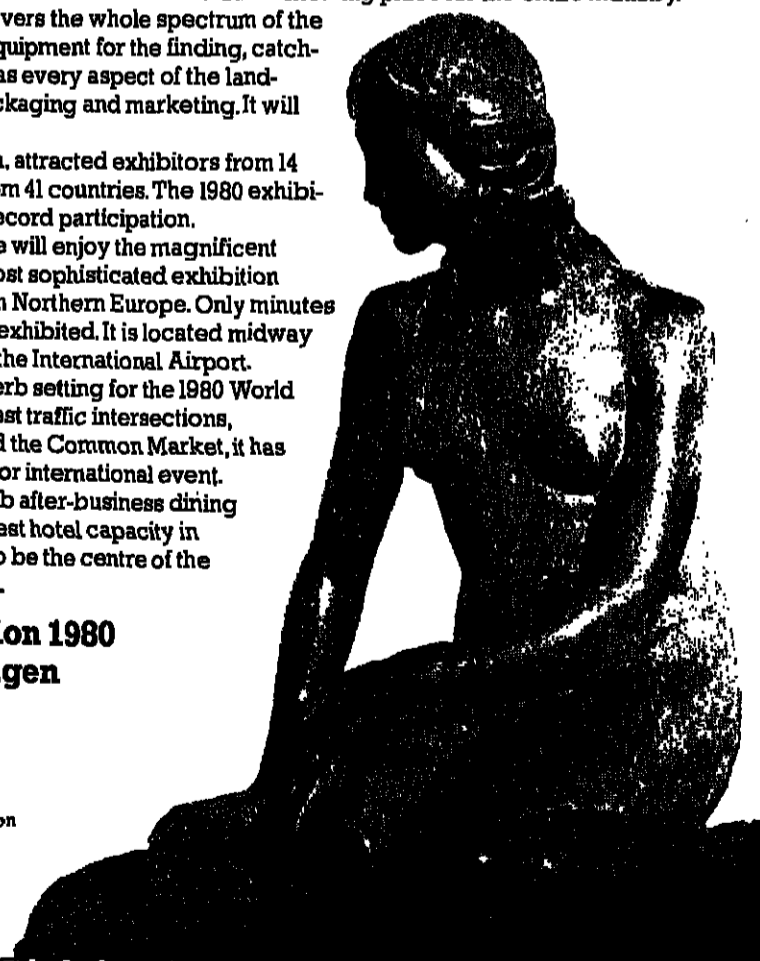
The last event in Halifax, Canada, attracted exhibitors from 14 different countries, and 25,000 visitors from 41 countries. The 1980 exhibition will undoubtedly exceed even this record participation.

Both visitors and exhibitors alike will enjoy the magnificent facilities of the Bella Center, one of the most sophisticated exhibition complexes in the world, and the largest in Northern Europe. Only minutes away from the port where boats may be exhibited. It is located midway between the centre of Copenhagen and the International Airport.

And Copenhagen itself is a superb setting for the 1980 World Fishing Exhibition. One of Europe's busiest traffic intersections, in the busy link between Scandinavia and the Common Market, it has all the support facilities to match this major international event. The world-famous Tivoli Gardens, superb after-business dining and entertainment facilities, and the largest hotel capacity in Scandinavia make it the perfect choice to be the centre of the world fishing and marine industry in 1980.

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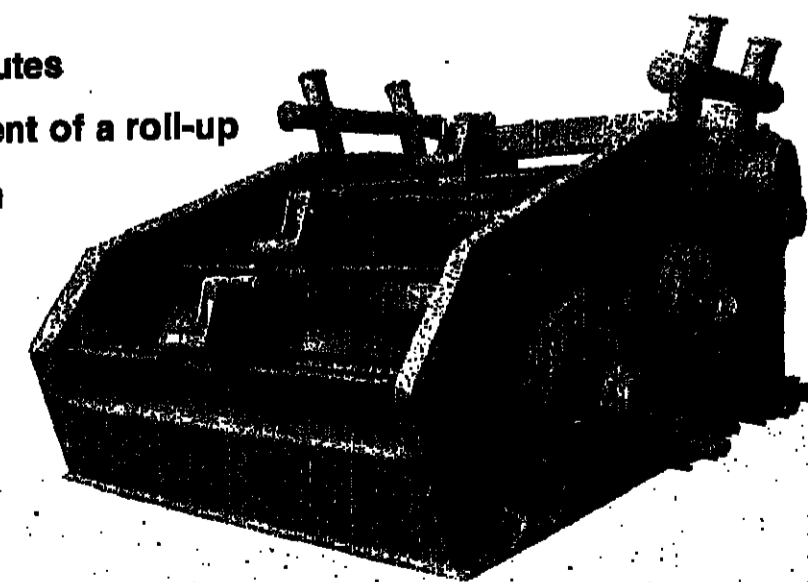


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I HAVE had a most interesting chat with Sir Hugh Mackenzie of the Atlantic Salmon Research Trust. This organisation, together with its American counterpart the International Salmon Foundation, is preparing a symposium on salmon on September 26 to 28 at Edinburgh University.

Over 200 bookings from both sides of the Atlantic have already been received. The symposium will be opened by an address from Prince Charles and the five sessions arranged will cover five main topics — the current position in relation to laws and regulations, exploitation methods both legal and illegal, the ecological restraints on stocks, the cultivation of salmon and the best courses for future conservation and development.

Sir Hugh was able to claim an important success for the efforts of the joint salmon protective organisations. Both came into being in 1969 following revelation of the damage to stocks caused by deep water netting operations of fishing craft who had discovered the general run on salmon from Greenland feeding areas back to their home rivers to spawn.

### Netting banned

In response to the campaign for restriction against the proved damage being done by those heavy sea catches to the river stocks in all countries affected, the practice of deep-water ocean netting was collectively banned as from 1976. As a result of the ban, the run back into Canadian rivers in 1977 showed a remarkable rise over past average years and in Scottish and English rivers there was a handsome revival in this year's spring run.

From logging records and experience it is estimated that the Greenland grounds support 45 per cent of Canadian salmon, the same percentage for Scottish and English stocks and the balance home to French, Spanish rivers and other European rivers.

The symposium will hopefully highlight and reward the efforts being made to conserve and develop stocks.

Incidentally admiration of Dr. Edwards' book *Salmon and Trout Farming in Norway* was expressed and Sir Hugh said he would like to see a similar work produced about British activity.

I had to sympathise with Sir Hugh over one point he made. This was the amount of time required to cope with the mass of reading matter which came to him — journals, reports,

## walkabout talkabout

with Arthur J Heighway



scientific enquiries. There is no cure for this problem. It is a necessity of progress. Knowledge must be made available and distributed. And one learned scientist kindly made this acknowledgement in a recent letter to me: "When I look along the bookshelves I realise how much your publishing activities have done for us and world technology at large."

A recent official report gives statistics that British fishermen suffer fatalities at a rate 16 times greater than do British miners. Fishing is certainly a hard business but it has improved from early days.

Here's a peep from an old record which I recently read of the hard life and sparse diet of the scallop dredger who once worked from Brightlingsea in the English Channel and over to the French coast: "On our first trip we landed 150 sacks which made £50 divided into 12 shares of which the boat took half and our six hands shared the rest as a reward for 100 hours of hard toil. Working so hard we had to live well and cooking and eating had to be fitted in as best we could. Often we would bring a sole or turbot up in the dredge and keep them alive in the well till we made harbour with time to cook and enjoy them."

### Cook a dozen

"We'd often cook a dozen scallops per man in a saucepan or if we got big oysters which we often did we'd open them, put half a dozen in the bottom shell of a scallop, dot with butter, season and bake in the oven."

A monthly pleasure of mine is reading the excellent journal *Australian Fisheries* edited by Peter Pownall. From the latest issue, I glean much interesting news of the special efforts being made by the well organised Australian Fisheries Division to develop resources to satisfy the new markets their

investigators are finding available overseas in — particularly in Japan and the Far East.

Down the centuries the Japanese have learnt to use a great range of marine life — such as, for instance, the humble and insignificant sea-urchin. This provides a specialised fishery and a high priced delicacy in the form of the roe eaten either raw or processed. And round the 11,000-mile coast of Australia are many stretches of warm shallow water capable of providing considerable supplies of sea-urchins. And Japan's needs?

### Two teams sent

Ten years ago her live weight catch of local "uni" as they call the sea-urchin, was 27,000 tons. Through over-fishing induced by higher prices, that figure steadily fell and imports from South Korea and USA gradually increased to nearly 25,000 tons in 1977. So Australian investigators of whom two teams have been sent to Japan, see an opportunity for Australian activity.

Already one firm has experimented with trial shipments built on the activities of three divers recruited from the abalone fishery. Requirements are for good quality roe of specific varieties, chilled and air freighted to Japan within 24 hours. Prices are remunerative for speedy delivery of high quality produce.

And that's not all. There's the octopus business. The 200 known varieties are found in all sizes but the one specially liked is in Western Australian waters — *Octopus titicus*. This grows to some 1½ kilos and the method of catching is by earthenware pots set in strings — customarily 1,800 at a time of which 900 are hauled daily.

Set on new ground, the catch ranges from six to 20 per 100 pots but declines gradually to two to five per 100 pots. By establishment, however, of mig-

Turn to page 47

## Eels and their uses

A LARGE section of the April issue of the NMFS Marine Fisheries Review is devoted to a description of eels and their utilisation.

Written by J. Perry Lane of the laboratory in Gloucester, Massachusetts, it lists the various species of eels, outlines their life cycle and briefly describes the main fisheries.

This is followed by an account of catching methods, storage and transport of captured eels, processing and preparation.

Copies of Marine Fisheries Review are available (price \$1.10) from the US Government Printing Office, Washington, DC20402, USA.

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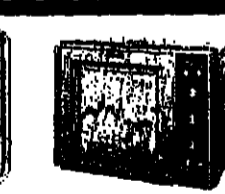
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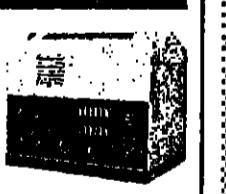
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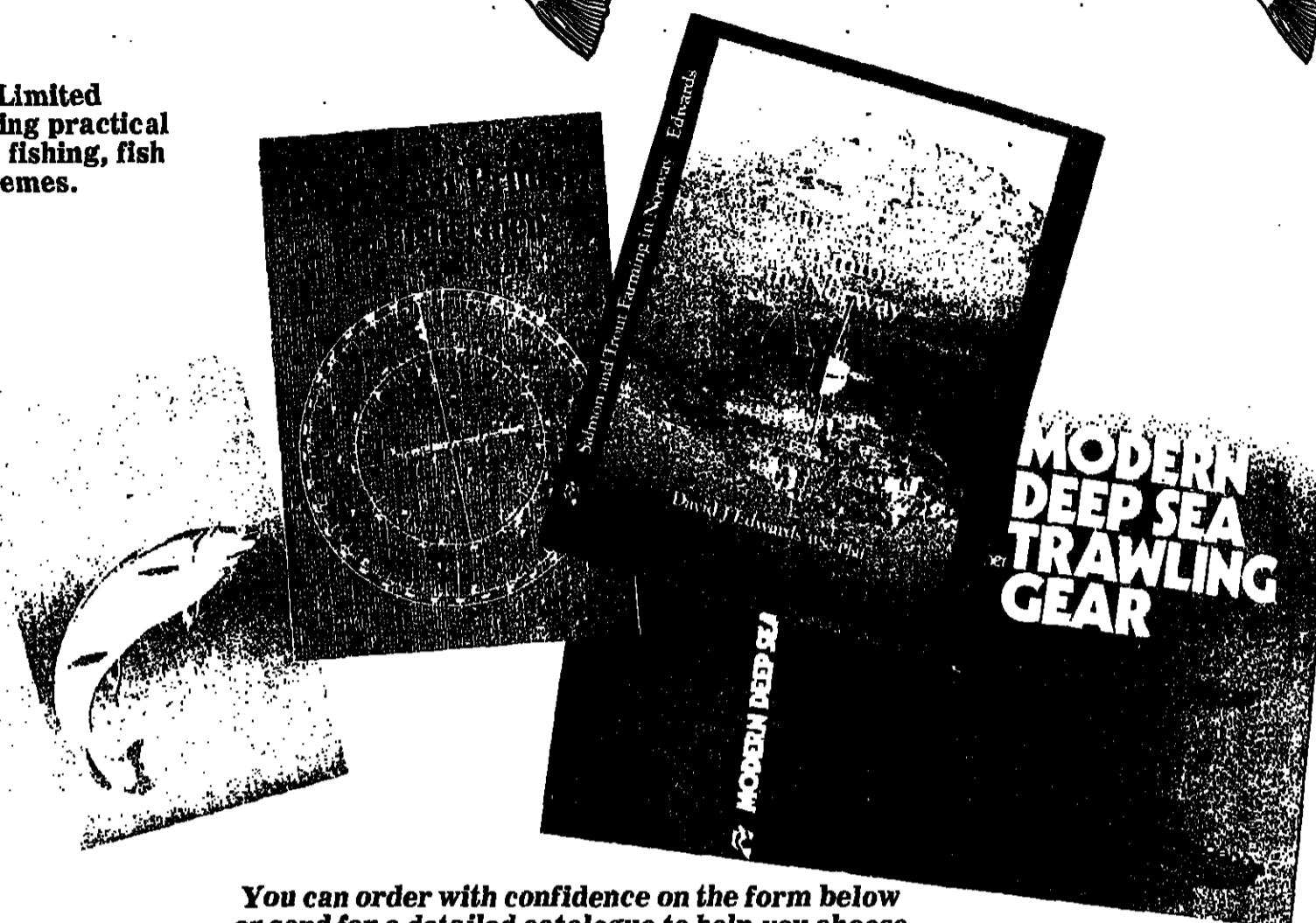


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## walkabout talkabout

continued from page 45

ration patterns of the octopus the yield will hopefully increase. A bonus of this fishery is that it reduces the damage done by the octopus on the rock lobster harvest — estimated at costing a million dollars a year.

Big business is already done by Australia in rock lobster export largely to USA whither also goes most of the huge output of the prawn industry in the Gulf of Carpentaria. This was discovered and developed largely through the foresight of Dr. Geoff Kesteven who was with FAO in our early days. It has grown to major volume but valuable research work is still being done on it to secure maximum information about the breeding and migration habits of the six commercially profitable varieties amongst the 30 odd types of prawns found.

Details of that research are quite fascinating. Carried out by Australia's home-bred and trained scientists it aims at establishing the life cycle and migratory habits of the principal commercial varieties of prawns. By well designed equipment and skilled manipulation the successful rearing of prawns through the larval stages has been accomplished. Outcome of this will aid determination of spawning grounds and migratory routes and thus steadily facilitate profitable fishing.

The story of this research strongly highlights the tremendous importance of the aid that science is now called upon to give to commercial fishing. Australia has the resources to cope with that problem but her work will also benefit many of the smaller

tropical and semi-tropical areas of the Pacific Ocean and Eastern waters. Some of these may be able to benefit from small specialised fisheries in their waters. Science will find many opportunities here as time goes on.

New Zealand has one such small specialised local fishery which deserves mention simply because of its uniqueness! This is the toheroa — source of what many believe to be the finest soup in the world. It is a shellfish found only on a few beaches on the West coast of the North Island — especially on the Ninety Mile beach — which is quite a stretch! As the tide floods the beaches the toheroa comes up from its home in the sand and, feeding on plankton and minute algae, builds its strength. That strength is shown in its rapid search for safety from the seeking spade. An earlier Prince of Wales described its soup as the finest in the world but one attempt at specialised marketing failed because, being packed in glass jars, the green colour derived from seaweed did not attract consumers!

Not to be outdone, the USA can enter the tests of potential new developments by citing that her scientists have reported her coasts can provide 47 varieties of seaweed capable of being cultivated for edible use!

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For faster towing speed the Midwatertrawls are now made with 128 inch mesh (1600mm half mesh) in the wings and first section of belly, or with rope wings and 128 inch mesh in first section of belly. The big mesh or the ropes will also help with the jelly-fish problem. The nets are fitted with stainless steel combination ropes for better opening and more stability, and are easy to handle through the power block. This net is presently being used by Danish and Swedish vessels in the Kattegat and Skagerrak waters with great success. The net can be made either for pair or single boat trawling and will be ideal for herring, mackerel, sprat and blue whiting fishing.

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## First of ply boat series

A NEW 42 ft (12.8 metre) boat built of iroko and plywood has gone into production in Rye in Sussex, England. The series will be marketed by Southern Nets.

The hard-chine craft has a draught of 4 ft 6 in and the first off the line will be powered by a Gardner 6LXB diesel engine.

The price in the UK is about £19,500 for hull, deck, bulkheads, engine beds and wheelhouse.

The vessel can be fitted out for stern trawling, gillnetting and other fishing methods.

# PROPELLER NOZZLE TRIALS SHOW BIG CUTS IN COSTS

Headline length (m)	Dimension of doors (mm)	Surface of doors (m.sq.)	Average pull(kg)	Variation (per cent)
15	2200 x 810	1.872	680	14.7
20	2200 x 810	1.782	780	41.1
20	2245 x 900	2.200	1100	18.1
25	2245 x 900	2.200	1300	46.1
25	2750 x 1010	2.777	1900	

Average measurement of the pull required to tow trawls of different sizes at a speed of 2.5 knots.

IN TESTS in Israel, a locally designed and made propeller nozzle is reported to have increased hollard pull and cut fuel consumption by more than ten per cent. Some skippers who have used the nozzle claim that the saving in fuel has been as much as 15 to 20 per cent.

The tests were carried out by the Fisheries Technology Unit of Israel's Department of Fisheries. The nozzle was designed by A. Kohane, a naval architect with the Department.

## 20 per cent fuel saving say Israeli skippers

Reporting on the project, the Unit notes that preliminary findings indicated that hollard pull is not an absolute indicator of fishing power because it shows "no straight relation to the power available for towing the fishing gear." Boats of equal power may, depending on their displacement, have different trawling power.

The report says that trawling power available at 2.5 knots, "may be roughly estimated by multiplying BRT by a factor of four and subtracting the result from hollard pull (Trawling power — Bp — BRT x 4)."

It was found that this empirical equation corresponded closely to actual measurements made on trawlers of 35-120 tons used in the investigation. But it adds that it is not known whether this applies to trawlers of different tonnage or design.

Measurements of gear resistance in the investigation were made at trawling speeds of 2.5 to five knots using an American-type semi-balloon shrimp trawl. Results are shown in the table.

### Averages only

According to the Unit, the data shown are rough averages only. This is because pull measurements vary widely, depending on sea state, setting of the doors, weight of the tickler chain, set-back of the foot rope, and so on.

As the report points out, "an increase in net size has much less influence on the pull than an increase in the size of the doors."

There are indications that

an increase in door size within the confines of the table "does not improve fishing efficiency of the gear." But not enough measurements have been taken so far to be statistically significant.

The tests showed a marked improvement when the trawlers were fitted with propeller nozzles. Thus a 60 hp shrimp showed a saving of 10.6 per cent of fuel every day at sea.

### Twice over

At local prices for fuel, the saving covered the cost of the installation twice over in a single shrimp season.

It was also noted that, with the nozzle, trawling speed rose from 2.5 to 2.8 knots. It could have been further increased had the skipper wanted it.

There are no data on whether a higher speed would boost catch rates.

According to the Unit, skippers whose boats fit nozzles have three ways of exploiting the extra power available. They are: To work with larger gear; to use the usual gear but increase trawling speed; or to maintain normal gear and speed but save fuel and perhaps engine wear.

The report says that studies need to be made of these options. Meanwhile, Israeli skippers using the nozzles seem to prefer to use their normal gear, increase trawl speeds by about 0.5 knots and get fuel savings of up to 20 per cent.

## Tunisia fishermen 'enthusiastic' over ferro-cement

THE RAPID progress made by Tunisia in ferro-cement boat building is seen by FAO as a good example of the application of "appropriate technology."

Dr. A. Labon, director of the Fishery Industry Division returned to Rome recently from an inspection of the Tunisia boat project.

"I was very reassured by what I saw," he told FNI correspondent Cedric Day. "It seems to me to be a good example of appropriate technology for developing countries who do not have the means for building steel vessels but want to progress from traditional craft."

The simplicity of the equipment needed and the relative ease with which building skills can be learned favour ferro-cement in such a country, he said.

Tunisia is already building its seventh concrete vessel, a 17-metre lobster fishing and collection boat.

"The local fishermen were lukewarm about ferro-cement boats but since they have seen them in operation they have become enthusiastic," Dr. Labon said.

"They are now eager to have more, so the government are getting more men to work on the project. Soon they will be running the operation on their own perhaps after another year of assistance from the FAO expert on the job."

CEDRIC DAY continues his review of FAO working papers on fishing problems and prospects in South-west Asia.

THE FISHERIES development potential of Tamil Nadu (formerly Madras) is evident in the state's coastline of some 1,000 km and its continental shelf area of about 77,000 sq. m.

Present production exceeds 370,000 tons, with sea fish accounting for 220,000 tons. And four in five of the 85 million people in the state are fish eating.

Fisheries are also seen as important for the employment they provide. There are an estimated 130,000 fishermen and thousands of other people in ancillary activities. More than 500,000 people in Tamil Nadu are thought to be dependent in some way on marine fisheries for their living.

Small-scale fishing dominates the landings. In Tamil Nadu, traditional craft bring in about 135,000 tons a year. Only eight per cent of the catch is processed for export, but sales abroad of species such as prawns and lobsters earn about 135 million rupees (£8.8 million).

In a fleet that includes 33,000 catamarans and 7,700 country craft, there are only 1,870 mechanised boats. But, as the drive for mechanisation and modernisation continues, big changes are expected in the composition of this fleet.

There is considerable institutional support for fisheries in the state. Marine research and development stations in a number of centres include Madras as the headquarters site, for marine and freshwater fisheries.

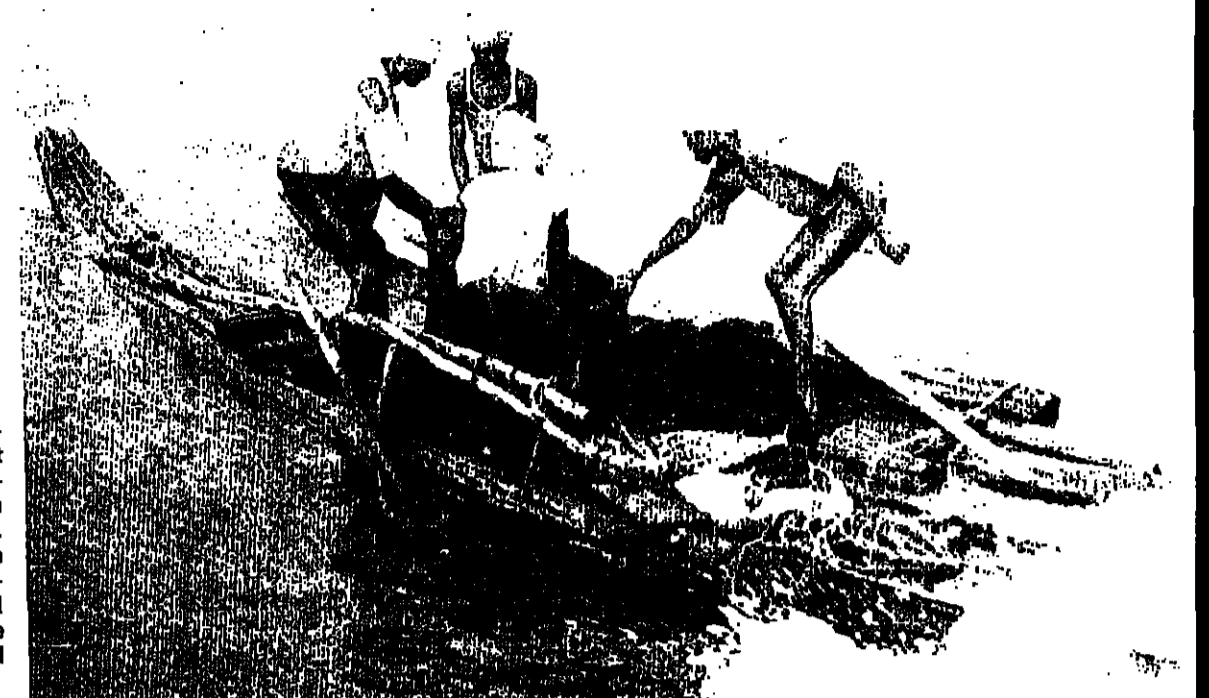
The central government of India also has several research and development institutes in the state. In addition, there are training centres for instruction in navigation, seamanship, engineering, fishing techniques and methods, boat management and so on. The Madras unit of the Central Institute of Fisheries Operatives has trained more than 200 skippers, some 200 engine drivers and many radio-telephone operators, gear technicians and shore mechanics.

### Boatyards

Then there is the Tamil Nadu Fisheries Development Corporation which has four boatbuilding yards, ice plants, cold storages and freezers at several places as well as a fish meal plant at Mandapam and a canning factory at Tuticorin. It also distributes boats and organises the marketing of fish and fish products.

Further, there are some 470 primary co-operatives for fishermen in the state, ten marketing unions, nine district co-operative

Working a two-boat seine net from a traditional catamaran off Madras. There are some 33,000 fishing catamarans still operating in the state of Tamil Nadu.



# THESE MEN NEED BETTER BOATS!

## A look at prospects in Tamil Nadu and Orissa

federations and 27 fisheries co-operatives.

While most of the catches are landed on the beach, harbours and landing places are planned and some are already being built.

Local consumption of fish amounts to about 270,000 tons a year. The requirement of the Tamil Nadu population is around 670,000 tons a year, so that the present deficit amounts to some 400,000 tons.

If compared with Orissa further north, with its shelf area of 25,000 sq. m., Tamil Nadu would appear to be a thriving fishing state. Orissa's production of 21,000 tons a year represents only about 1.7 per cent of India's supply.

This is not surprising in view of the fact that the state is regarded as one of the least developed in India.

However, a recent study of Orissa's

fisheries by the staff of the FAO UNDP project for Development of small-scale fisheries in south-west Asia indicates that landings could be substantially improved.

### Catch estimates

It is estimated for example that demersal fishing alone might yield 65,000 tons a year from coastal waters. While boats in the northern part of the state take about 5,000 tons a year of hilsa and pomfret, there is no reliable estimate of the potential catch of pelagic fish.

As in Tamil Nadu and other coastal states, one urgent need is for improvement in local craft. Of some 6,000 in Orissa, only 250 are mechanised. So-called log rafts are widely used on the east coast of India, and the report

suggests that efforts should be made to improve them as fishing platforms.

It also notes that mechanised gill netters in the state are only making one-day trips. These should be extended to two to three days but for this they will need ice and insulated fish boxes.

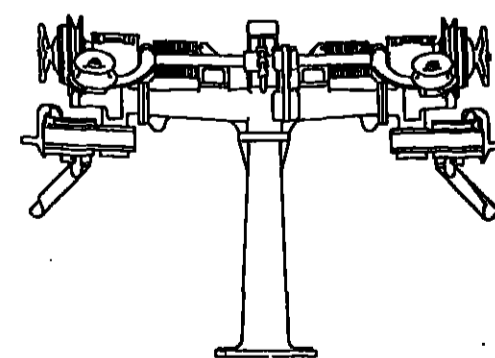
Half of Orissa's present small catch is sent to the markets in Calcutta where it fetches a higher price. At the same time there is an unsatisfied market in the state for at least twice the amount presently on offer. And Calcutta needs more fish as well. Demand therefore favours efforts to boost production.

But, as in other states of India, there are serious obstacles to this.

As noted in other FAO studies of the region, inadequate roads in particular restrict the flow of trade. Thus a new fishing port was completed and ready to operate before it could be reached by road from the areas it should be supplying.

Another difficulty is the high cost of building harbours and improved landing places. The report points out that the commercial harbour at Paradip provides shelter and temporary facilities for the expanding fleet of shrimp trawlers.

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# Fish plan boost for Pakistan!



Sorting out the catch on a beach in Baluchistan. Picture by FAO.

IN ITS five-year plan for fisheries covering the period 1978 to 1983, the government of Pakistan is aiming at an increase in output from 257,000 tons in 1978 to 344,000 tons in 1983. The catch in 1977 totalled 249,000 tons, valued at Rs 409.1 million (£22 million).

To help implement this plan, Rs 411 million has been allocated to fisheries over the period.

Marine fisheries accounted for 216,000 tons of the 1977 catch, up from 177,000 tons in 1976.

## Fishing harbour

To boost production in this sector, special attention will be given to the Mekran coast. The plan provides for continuation of the work on a fishing harbour at Gwadar in Baluchistan province.

Facilities at Pasni, Soniani, and Jwani will be improved. Karachi fish harbour will be extended to cope with an increase in fishing vessels.

A feasibility study of tuna catching, processing and marketing revealed that the Arabian Sea and Gulf of Oman contain under-utilised resources. The five-year plan therefore provides for a pilot project for exploiting these fish.

## Inland waters

Production of inland fisheries in 1977 totalled 33,000 tons. With a water area for inland production estimated at around eight million acres, it is believed that proper use of resources could push the yield beyond 200,000 tons. Inland fisheries therefore feature prominently in the plan.

It includes further development of small-scale fish farming. More hatcheries will be set-up and possibilities for raising fish in water logged areas and brackish waters will be explored.

To provide help and advice on these and many other aspects of Pakistan's fisheries, a Central Fisheries Development Institute is to be established.

# INDIA GOES DEEP SEA WITH THAIS

TATA Oil Mills (Tomco), a member of the group controlled by Tata and Sons of Bombay, has added a new dimension to deep-sea fishing off India by launching large-scale operations in the Bay of Bengal and near the Andaman Islands.

The company expects to export its catches to Thailand and other countries in South-east Asia.

This initiative has been made possible, says FNI correspondent Trevor Drieberg, because the Indian government allowed the company to charter 25 trawlers from Thailand for one year.

Tomco has obtained 12 boats under this scheme and has already started operations. The remaining vessels are expected to come into the area within the next few months.

## Trawlers

Protagonists of this deep-sea venture, the largest of its kind so far in India, say that it will do much more than earn foreign exchange. It will also help to train Indian crews in the techniques of deep-sea fishing. And this could eventually enable Tomco to buy and run its own fleet of modern fishing vessels.

# OIL MONEY FUNDS MIDDLE EAST PROJECT

A PROJECT which should give strong impetus to fishery development in the Red Sea and Gulf of Aden has been signed at FAO headquarters in Rome.

It will be financed mainly through OPEC with a contribution from the UN Development Programme. Countries involved are Egypt, Jordan, the People's Democratic Republic of Yemen, Saudi Arabia, Sudan and the Yemen Arab Republic. Fisheries in the region are estimated to have a potential yield of 500,000 tons or more a year.

OPEC will provide US\$4.2 million towards the project and the UNDP contribution will amount to \$40,000. FAO signed the agreement as the executing agency.

Planned for a period of 2 1/2 years, the project results from investigations started in late 1975 by an FAO mission.

## Red Sea

On the basis of earlier surveys, the mission concluded that the Red Sea could yield a harvest of some 200,000 tons a year compared with about 50,000 tons at present. The richer waters of the Gulf of Aden could probably yield more than 300,000, up from 140,000 tons.

The area covered by the project lies within latitudes 10° to 30° N and longitudes 32° to 52° E. Resources in the area are exploited mainly by artisanal fishermen using their traditional small wooden craft and primitive gear. Most of the increase in catch is expected to consist of smaller pelagic species.

Development of the fisheries, bringing in modern vessels and shore-based industries, should not only increase fish supplies for consumption by the local people and for export but will create jobs and lead to a general improvement in living standards.

The project will be located in the area, with a headquarters and sub-stations, and will be monitored by a steering committee

made up of representatives of all countries and UNDP and FAO.

It will keep the project under review regarding work and problems and the need for adjustments, ensure provision of counterpart support, facilitate movement of project vessels and personnel, promote exchange of information between participating countries and recommend investment opportunities. It will also decide on the participation of neighbouring countries who may wish to join the project.

The immediate objectives of the project include determining the distribution and abundance of major stocks of fish, selecting the type of equipment best suited for harvesting them, determining the supporting programmes needed such as harbour improvement, boatbuilding and repair, service facilities, etc and the training needs at various levels.

## Regional

Each participating country will adopt a "regional approach" in planning the co-ordinated development of its fisheries. The regional approach is needed because of the common nature of the resources, the need for common methods of survey, analysis and evaluation, and the free flow of information and the exchange of experience.

Training programmes will be assisted and sharing technical facilities and instructional personnel; and setting up joint ventures in fishing, processing, marketing and distribution.

Introduction of modern fishing methods will be related to small-scale fisheries. The early emphasis will be on "the use of fishing vessels, gear and methods commensurate with the likely availability of manpower and skills and with the character of the resources and fishery conditions in the area."

The project will demonstrate the fishing methods to be used with improved vessels and gear to increase the catch.

## Pilot schemes

The project will "aggregate existing resources data," develop a comprehensive operations plan, set up pilot schemes for "artisanal fisheries integrated development," including the creation of infrastructure and organisation and management of investments through credit schemes, etc.

The small powered open boats suitable for trolling, hand-lining, potting and gillnetting used in the demonstration fishing and train-

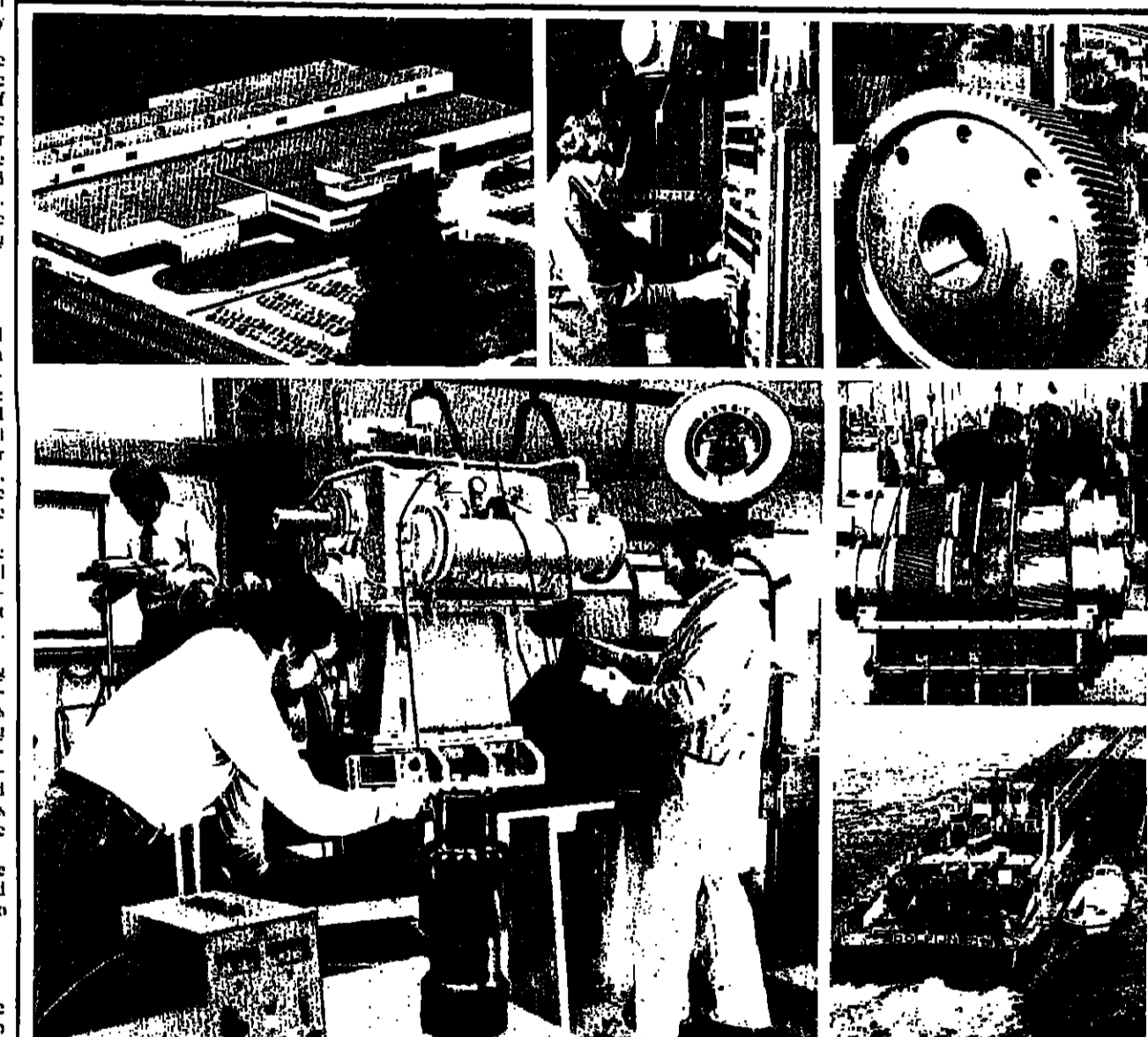
ing will be moved from location to location.

In view of the ambitious scope of the project and the underdeveloped state of the fisheries in the area, as well as the limited availability of personnel with the technical knowledge and experience required for rapid development, further effort is envisaged to realise eventually the potential of the resources.

As the project document concludes, this first step toward that end "is designed primarily to improve the required infrastructure, and to provide on-the-job training in order to expand the existing fisheries facilities in the area."

This is a realistic and practical approach to development which could well lead to industrial investment in fisheries in the area.

Netting a catch using two boats off Aden in South Yemen. The People's Democratic Republic of Yemen is one of the participants in the project.



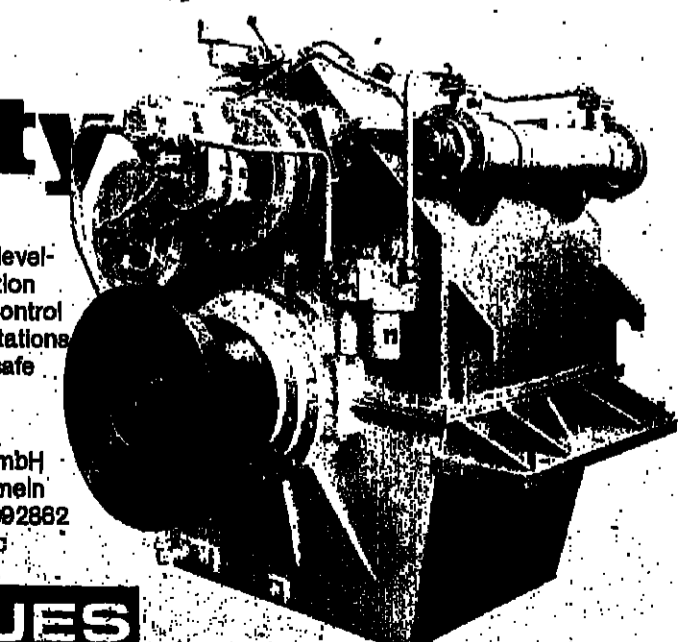
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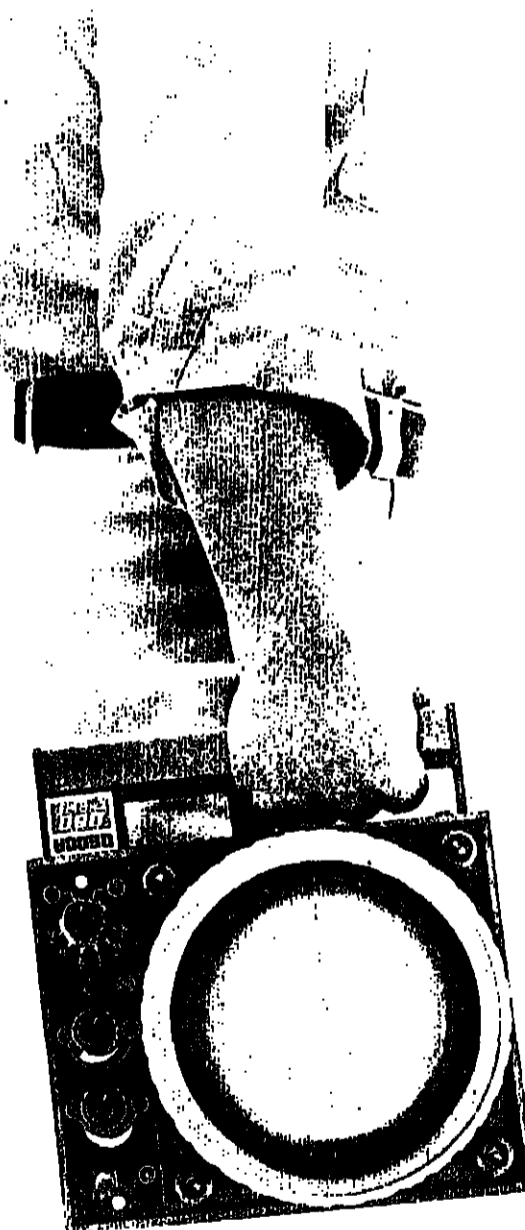
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Further information from Paragon Electronics Corporation, PO Box 1456, Bellevue, Washington 98009, USA.



# MONEY IN FISH PUMP WATER

DELIVERY will start in November of the first plants in the largest order for fish processing equipment ever received by the Swedish company Alfa-Laval.

As reported briefly in *ENI* in August, this has been placed by the state fish meal company Pescapero. It is for 14 recovery plants for

protein and oil from pump water and is worth about US\$10 million.

The plants will be used by the fish meal industry as part of its drive to reduce waste from catches and to cut down pollution.

They will treat the water used when fish are pumped from the boats to the factories. During the pumping, the water picks up fish particles and fish oil. When discharged into the harbour this is a loss of valuable materials and also causes a pollution nuisance.

"For many years," says Alfa-Laval, "we have been aware of the problem. We have carried out extensive tests and have also built a full-scale test plant to solve it."

These tests were concluded in 1974-75. Then, early in 1977, Alfa-Laval began serious discussions with Pescapero and they led to the placing of the order in June this year.

### Commence

Beginning in November, delivery will be at the rate of two plants every second month. Alfa-Laval will be responsible for erecting and starting up the plants.

Included in the order are 28 separators, 31 drum drainers made by Celco and 45 pumps from JMW, both members of the Alfa-Laval group.

Describing the process, Alfa-Laval says that in the recovery systems large amounts of water — up to 350 cubic metres an hour — will be treated. "That is why the plant is based on a combination of static separation and centrifugation. In order to improve the static separation and to recover the suspended fish substances as quickly as possible, a number of self-cleaning, rotating strainers are inserted in the system."

### Complete

From its inlet, a complete plant consists of feed pumps, rotating strainers, drum drainers, settling tank for separation of oil (with scraper, filter and solids-ejecting centrifugal separators).

After discharging, the tank is emptied and the remaining fish substance collected on the bottom of the tank is pumped through the heater (which functions as a fish cooker) to the meal factory's processing separation plant.

"In this way," adds Alfa-Laval, "practically all suspended fish substances and a very great deal of the oil is recovered."

### Composition

"The quicker the fish substance can be treated, the higher the quality of the product from it. Since the process is continuous, the recovered suspended material will be as fresh as the fish, but the composition will be somewhat different."

It is also intended that the new plants will get rid of impurities in the oil as soon as possible and thus reduce free fatty acids. Values as low as 2.5 per cent "FFA" have been obtained.

"By using the new system," says Alfa-Laval, "yield of fish meal and oil will be increased by at least six per cent."

## product news

METHODS • GEAR • EQUIPMENT  
• PLANT • COMPANIES

### COMING UP WITH THE AUTOMATIC ANSWER...

## Marco mechanise longlining

A NEW mechanised long-line fishing system that features automatic baiting has been introduced by Marine Construction & Design Co. (Marco), of Seattle, USA. Named the "TiLiner", the system is designed for use in small to medium-size longline vessels that use any conventional longline gear.

The Marco TiLiner system consists of 19 components comprising three basic groups — a bait cutter, a baiting and setting group, and a hauling group.

The past 25 years have seen mechanisation introduced to many different types of fishing, most notably purse seining, trawling, and pot fishing," said Peter G. Schmidt, Marco president. "But longliners have continued to fish very much as they have for centuries, with very little mechanisation. Some attempts at it have resulted in large complicated systems."

According to Marco, as few as two people can fish longline gear with the TiLiner system.

primarily because of automatic baiting and hauling features. Because of the automatic baiting, a greater number of hooks can be handled per day.

### Bait cutter

During fishing operations with the TiLiner, bait is cut by the hydraulic-powered bait cutter and then placed in a bait trough. The hooks are automatically baited as the gear passes through the trough during setting. The gear is set at conventional setting speeds.

The hauling operation utilises a novel adjustable bulkhead roller, called the "TiUnwinder", that controls the twisting of the groundline. After the fish are gaffed at the gunwale by one crew member, the groundline (with gangions and hooks intact) is led to the hydraulic hauling assembly where another crew member sits and places the hooks on a slowly rotating spool.

Marco has patented the TiLiner fishing system in the USA and other countries.

## NOW TRAWLERS FIT GRP TANKS

HYDROGLAS section water storage tanks, made by BTR-Permal RP Ltd., have already been installed on hilltops and down mineshafts. Now they are going to sea in trawlers.

In the British trawler *Norina* (owned by Marr), a Hydroglas tank is used to store livers. The non-corrosive GRP panels of the tanks enable them to be kept clean without deteriorating.

The sectional construction helped during installation in the ship, because the access to the working site was too restricted to bring in the complete tank.

This, coupled with good performance in the *Norina*, led her owners to specify Hydroglas tanks for three other trawlers. Further information from BTR-Permal Ltd., Hydroglas Works, Bristol Road, Gloucester GL1 5SU, England.

## Warmth in a small craft

THE British firm Webasto has introduced two new heaters designed for use on small craft and to work in conjunction with a small bore central heating system. The new units are the DBW2010 (output of 9.3kW) and the WO2352 (4.7kW).

Both units use diesel fuel which is claimed to be safer and cheaper than gas heating systems.

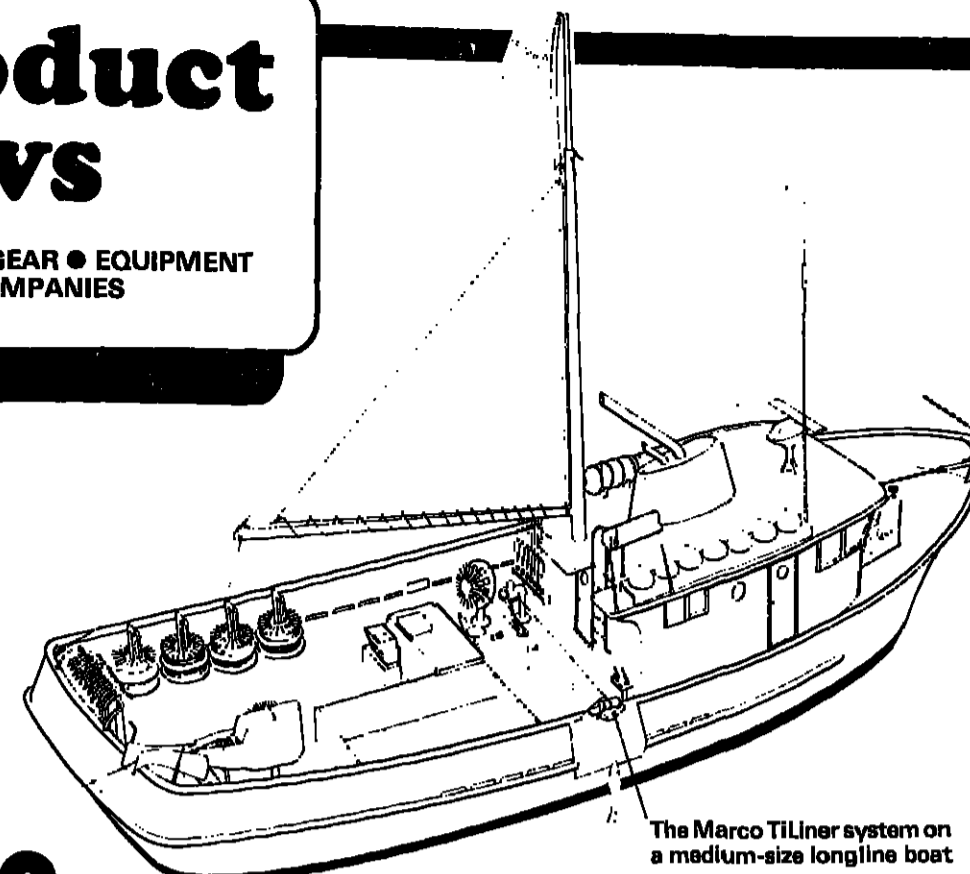
The larger unit has a pump to circulate the water through the system and gate valves are fitted to isolate each section for service.

### Heating elements

A variety of heating elements are available including panel radiators, fan-assisted heat exchangers and a hot water tank with an indirect heating coil.

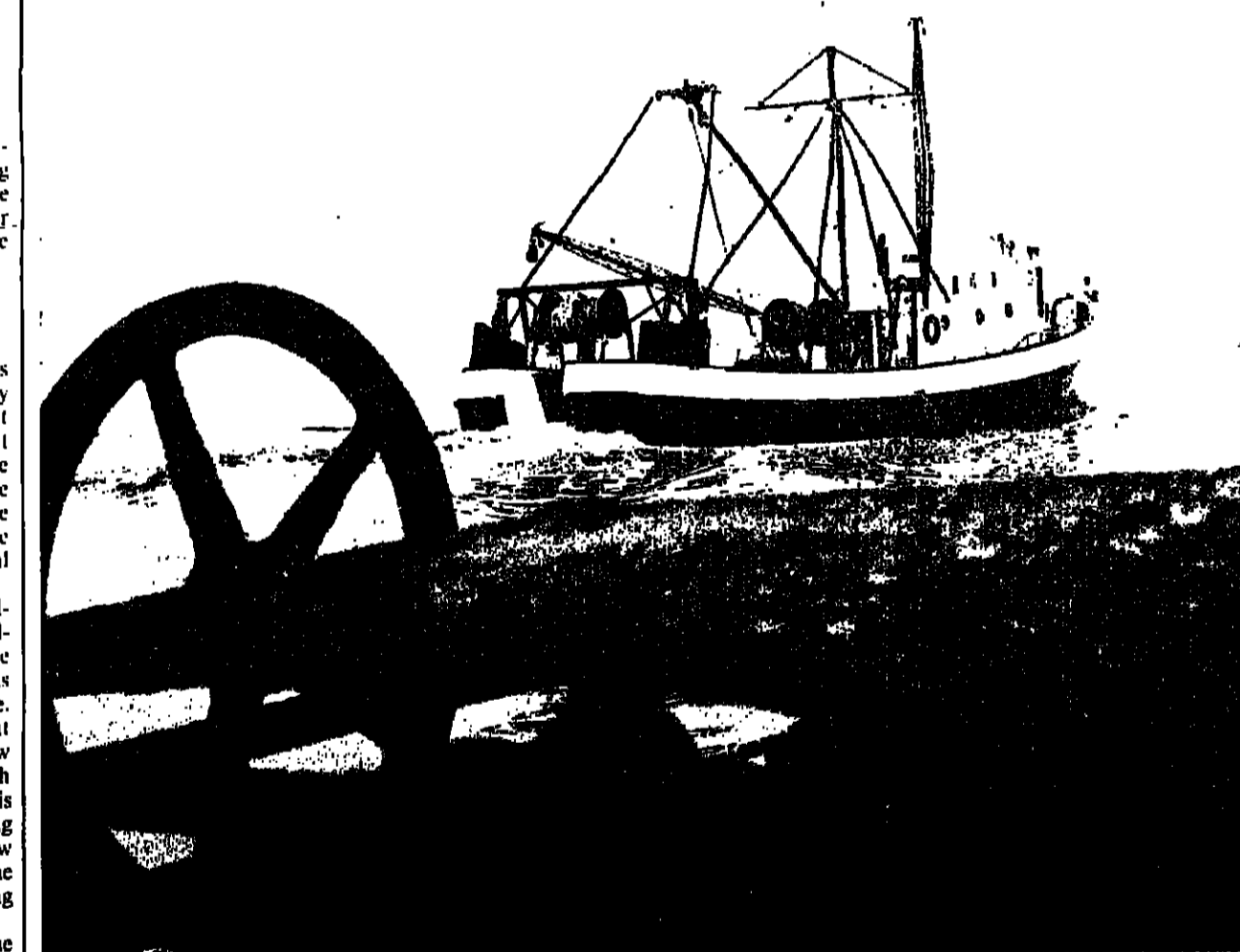
The domestic hot water system is powered by a Jabsco pump and can supply both hot and cold water taps and a shower.

Both models can incorporate all the refinements of normal house heating systems including time switches and thermostats.



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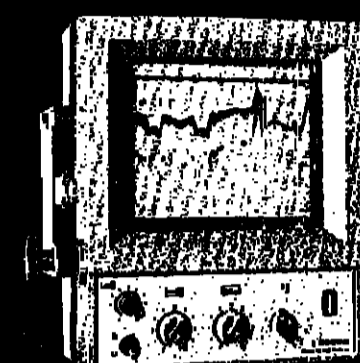
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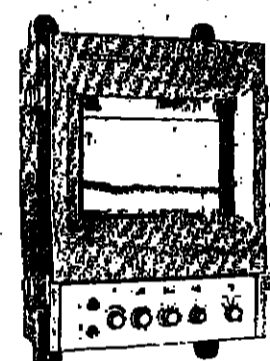
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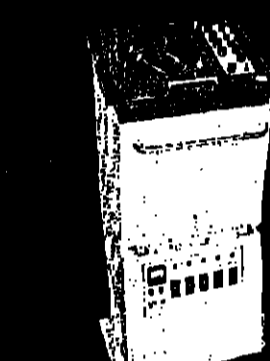
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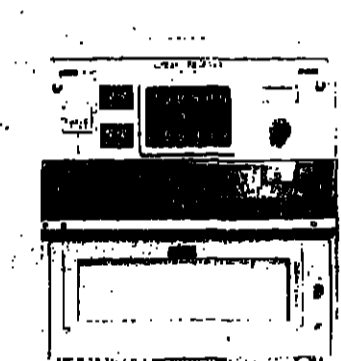
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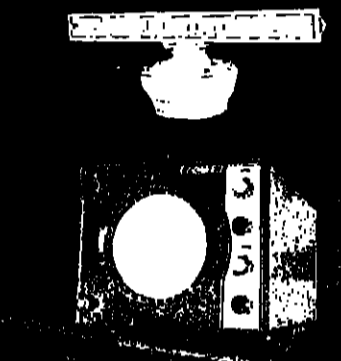
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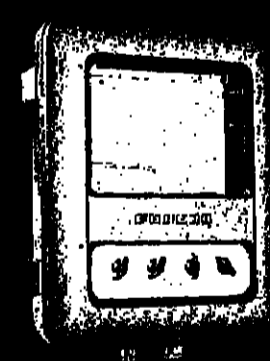
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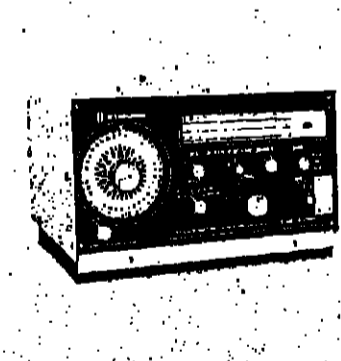
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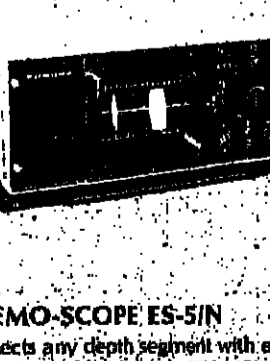
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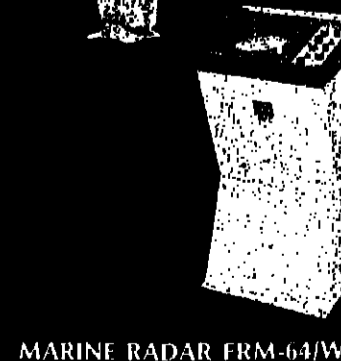
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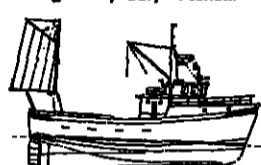
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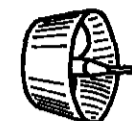
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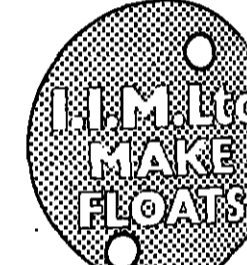
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